THE METAL INDUSTRY
WITH WHICH ARE INCORPORATED
THE ALUMINUM WORLD, THE BRASS FOUNDER AND FINISHER AND ELECTRO-PLATERS REVIEW
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# MECHANICAL VS. CHEMICAL PREPARATION OF METALS FOR PLATING, TINNING, GALVANIZING, ETC.

By W. L. Churchill.

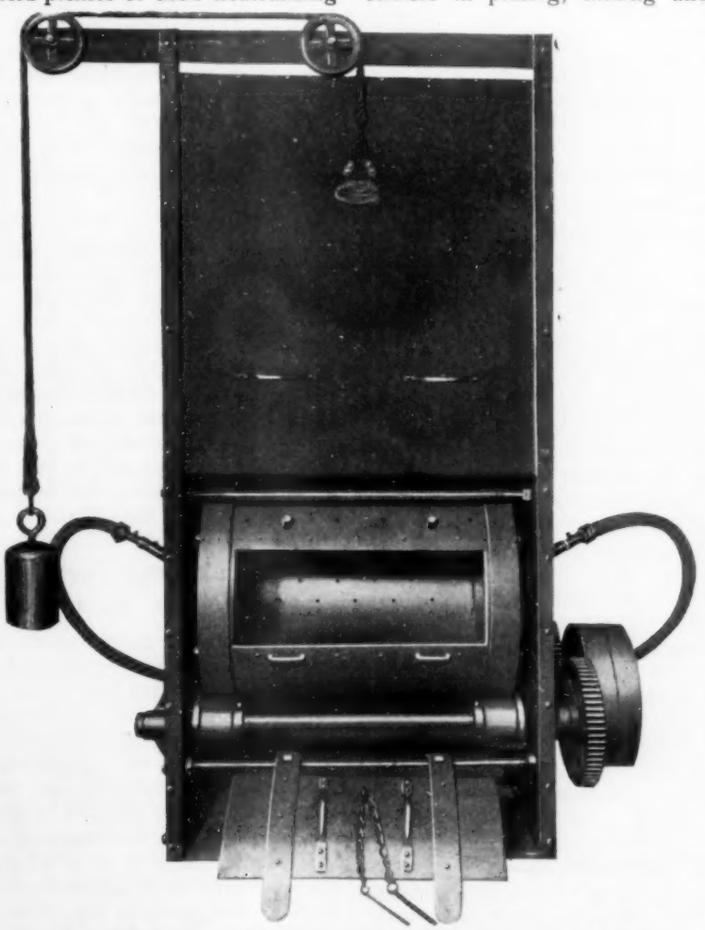
Many of the obscure and mysterious difficulties, as well as some of the more pronounced and understood ones, connected with the protective or decorative coating of metals, by electro-plating or by dipping in molten metal, are caused by the acid pickles or their neutralizing agents used in the preliminary preparations of the work.

These difficulties can be entirely eliminated by substituting thorough mechanical treatment for the usual methods employed, and in many cases effect a decided reduction in costs.

The most satisfactory results are obtained by dry cleaning with the sand-blast, and this method should be given preference over either wet or dry rumbling where the nature of the work the cost does not prohibit its use.

The foregoing applies chiefly to iron castings (malleable or gray) whose scale and sand have to be removed for the purpose of subsequent coating; it also applies in a lesser degree to some lines of brass and bronze castings, forgings, etc.

The sand blast is steadily gaining in favor as a means of producing various surface effects on metal, and has largely supplanted the use of dipping acids for this purpose in the decorative treatment of the smaller lines of work, such as jewelry, clock trimmings, belt buckles, etc., usually made of the softer metals, and the type of apparatus made for this purpose is quite efficient.



A SAND BLAST TUMBLING BARREL USED IN CLEANING CASTINGS.*

The larger type of high-pressure apparatus, designed for cleaning large, refractory work, and the same model elaborated to handle quantities of small work in bulk, by discharging the abrasive material into revolving drums containing the work, have a much greater field for usefulness in plating, tinning and galvanizing, than they are usually allowed to fill, even in plants possessing them and performing these operations.

As a rule such outfits are installed in connection with the foundries and used for the purpose of freeing from the bulk of sand and scale such castings as, on account of shape or size, cannot be satisfactorily cleaned in the foundry rumblers. The plating, tinning or galvanizing departments seldom get the benefit they might from this arrangement, as the work is usually cleaned without consideration of the requirements for these operations, thus compelling subsequent pickling to complete the removal of sand scale, partially done by the sand-blast.

To the plater, the evils of acid-saturated castings are well known to those who have had to contend with them, the difficulty with which these castings are coated, their proneness to blister and to discolor or tarnish, hardly need recital here, but are sufficient to warrant the use of other methods of preparation.

To the tinner and galvanizer, the stubbornness with which acid soaked castings resist efforts to coat them as a whole or in patches, the dross formed by the loose surface mixing with the metal, and the continuous presence of unnecessary acid fumes, makes the change to mechan-

*Manufactured by the Tilghman-Brocksbank Sand Blast Company.

ical cleaning desirable from the economical and sanitary standpoint, as well as on account of improved appearance of product.

The plater can obtain results on sand-blasted castings that are otherwise practically impossible; to illustrate this I will cite the case of a concern manufacturing a cast iron article containing numerous deep narrow pockets which had to be nickel-plated, and as these pockets were inaccessible to ordinary polishing tools they were sand-blasted, and when finished had a very pleasing, white appearance; this concern had occasion to send many of these castings to other shops to finish for them, but as none had the sand blast, they were unable to duplicate the work, as the pickles used to remove sand from pockets caused a smoky appearance in these recesses, necessitating the use of aluminum bronze to hide, and much cheapening the appearance of the work.

Tinners and galvanizers do not always lay the cause of work not coating to the result of undue pickling, but this is most frequently the reason: Dry cleaned work need be but quickly rinsed in the soldering flux, and submerged at once in the molten metal, effecting a considerable expedition in this work, and further, the work can be handled with a degree of certainty as to result that acid treated articles cannot insure.

Once accustomed to working with with mechanically cleaned castings the use of acids with their attendant train of evils will not be resorted to for this purpose except under compulsion.

## BRONZE WIRE RODS FREE OF DUTY.

The United States General Appraisers, on October 8, decided that in the matter of protest of the Driver-Harris Wire Co. against the assessment of duty by the collector of customs at the port of Newark, N. J., that "a hot-rolled rod or bar, used solely as a raw material for making wire, and composed of an alloy of copper and phosphor tin, which contains 94 per cent. of copper, is free of duty under paragraph 533, tariff act of 1897, as "composition metal of which copper is a component material of chief value, not specially provided for."

Commenting on their decision the Appraisers say:

"The rods or bars here in question are not available for any practical purpose until they are subjected to further manipulation and manufacture. In its imported condition the article is the raw material for the wire drawer. It must be considered as an ordinary or commercial form of alloy metal. There has been some trade testimony offered to show what in fact constitutes the composition metal of commerce. The same is, however, wholly unsatisfactory. It appears to us that the provision in the tariff for *all composition metal* did not contemplate one kind of composition metal or copper alloy, but that by the further words 'of which copper is a component material of chief value,' congress did provide for an alloy metal of the kind here in question, composed of 94 per cent. of copper and 5 per cent. of tin."

## REPORT OF NEW ROLLING MILL.

Reports in machinery circles have it that the National Conduit and Cable Company of New York have contracted for the machinery for their new sheet mill and that it will include four sets of rolls. Within the last two years the company have established at Hastings-on-the-Hudson, N. Y., a plant devoted to the manufacture of tubing and known as the National Brass and Copper Tube Company, and according to reports the next move of the company will be the manufacture of wire and sheet. No confirmation of this report was obtainable at the offices of the National Conduit and Cable Company, 41 Park Row, New York City.

## THE OLD BRASS FINISH.

By Geo. O. Thompson.

It would seem that this popular finish ought not to give much trouble to the plater; still the writer knows of cases in the past where it has given lots of trouble to first class men. Judging by the number of inquiries about this finish in The Metal Industry there seem to be quite a few having difficulty to produce it and have it an even finish and free from stains.

The method I am about to describe for producing old brass is different from anything I ran across in the United States. The first time I saw the process at work it did not appeal to me, but still, when finished, the article looked very good. In fact it was all there was to be desired in my opinion; that was enough for me, so I adopted the same method and am getting good results.

First of all, the brass goods are cut down to a smooth surface. Now the operator takes one or two pieces (if large) at a time and polishes them; wash in cold water and run quickly through a bright dip, afterwards rinsing in clean running water. Now it is ready for scratch brushing.

Before we go any further a few words about the scratch brush lathe may not be out of place. Have nothing but clean water in the pan under the brush and change it at least twice per day, and oftener if very busy. Keep pumice moistened and in a separate dish outside of the water pan.

Now for the operation. Take your brass article and smear it with a little pumice; keep the article moistened and go all over it with the brush, using a little pressure so as to deaden the surface evenly all over. Now rinse off the pumice thoroughly in your water pan, and go all over the article again, this time using no pumice, only keeping the article thoroughly wetted with water. This will produce a nice even finish; rinse off in clean water, dip in cyanide water, rinse, dip in soap solution, rinse in cold water and then in hot, then shake until dry. Place in oven and allow the work to cool before lacquering. Use a good white lacquer with a few drops of yellow color (purchased from the lacquer makers) in it. It is advisable not to run hollow goods through the acid dip; small work can be put through in baskets and finished just the same.

## A CHANDELIER OPPORTUNITY IN CANADA.

By J. F. Hubbs.

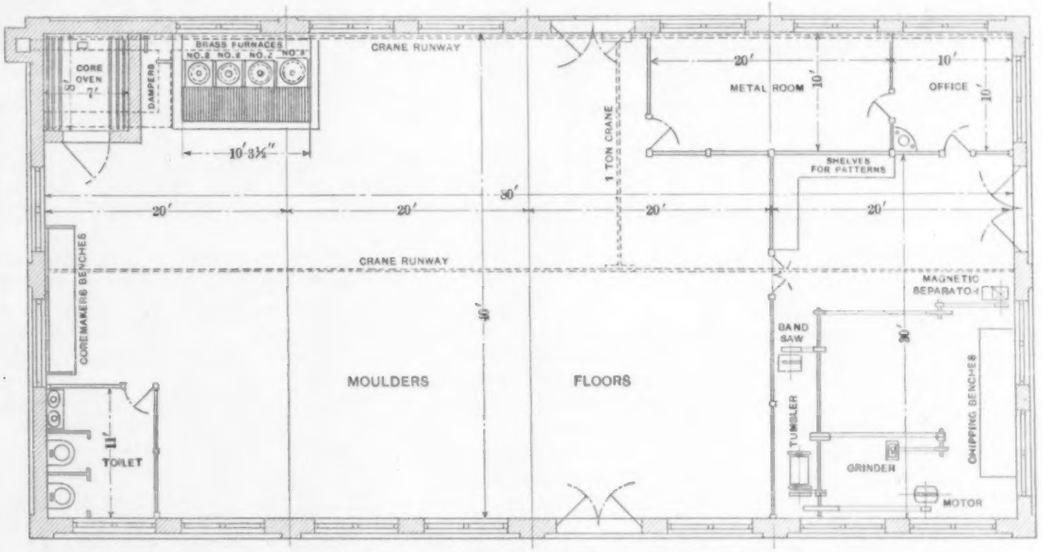
At the present time Canada is an excellent market for an enterprising manufacturer of chandeliers and portables. Several small Canadian firms are making these goods, but the quality of their product is, I believe, inferior to the American. The Canadian articles are made in the common shades, not in any of the better finishes and the goods are not proportioned properly. I think this is attributable to the attitude of the manufacturer who feels secure behind the barricade of a 30 per cent. duty.

I believe there is a good opportunity for American manufacturers to establish factories in Canada. Shipping facilities are good in the cities, especially in the smaller towns where there are offers of land grants, free taxes and other inducements for manufacturers to locate in the Dominion. The cost of production is no higher, if as high, as in most parts of the United States and there is a supply of both skilled and unskilled labor. The thousands of settlers coming into the country each year keeps the labor market well stocked. Many American factories of different kinds have been established in Canada, and I believe it would be a profitable venture to establish a good chandelier and portable factory in the Dominion.

## DESIGN FOR A MODEL BRASS FOUNDRY.

We have received from the Whiting Foundry Equipment Company, of Harvey, Ill., the following description and the accompanying drawing of what may be termed a model arrangement for a brass foundry having a melting capacity of about one ton per day. A study of the drawing will show that the layout may be enlarged or made smaller without in any way changing the general idea of the design. The plan will, therefore, prove of value to those small foundries contemplating extension, and also to those about entering the business.

The layout as shown on the drawing is for an output



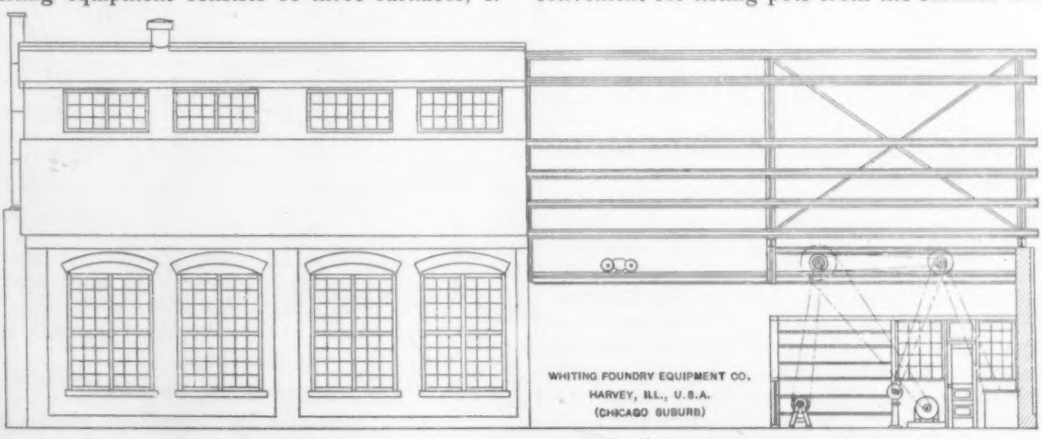

PLAN FOR A MODEL BRASS FOUNDRY.

of about one ton per day, depending, of course, on the class of work made. The building of brick and steel construction is 80 feet long and 40 feet wide.

The melting equipment consists of three furnaces, 17 inches inside diameter for No. 35 to 50 crucibles; one furnace 20 inches inside diameter for No. 60 to 90 crucibles. These furnaces are arranged for natural draft with a pit in front covered by an iron grating. They are constructed with steel shells and heavy cast iron tops made in two pieces to allow for expansion. The bases are made in one piece and are fitted with cast iron drop type grates which are arranged so that the grate may be readily dropped from the floor without the necessity of going into the pit. This point is found especially convenient in brass foundries as they can drop the fire immediately in the event of a broken crucible. The furnaces are also arranged so that forced draft may be applied at any time should it be necessary.

Adjoining the furnace is the core oven which is provided with the necessary flues and dampers so that gases from the brass furnace may be used to dry the cores. This oven is provided with a roof supported on steel framing and is fitted with adjustable side racks for cores; also provided with a sheet steel swing door.

Along one half of the foundry and spanning over furnaces is located an overhead traveling crane, one ton capacity, about 18 feet span. This crane is especially convenient for lifting pots from the furnace and handling flasks and crucibles for heavy castings. The runway being extended the full length of the building allows the crane to travel into the cleaning room as required.

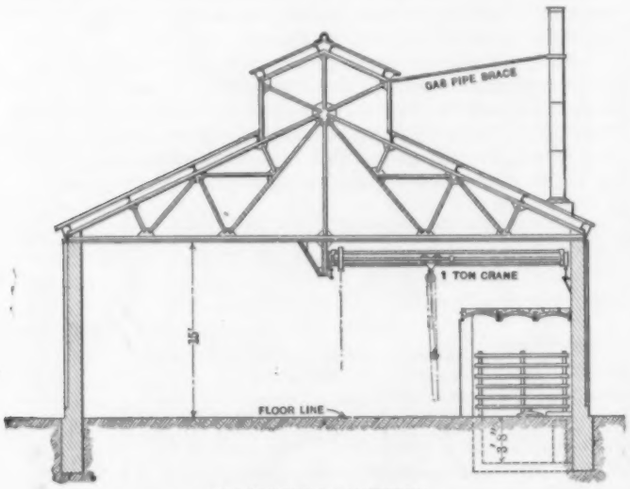



SIDE ELEVATION. LONGITUDINAL SECTION.

The cleaning room is provided with the necessary chippers' benches, tumbler, grinder, band saw for cutting sprues and magnetic separator. These machines are all driven from line shaft which may be operated by an electric motor.

Adjoining the cleaning room is the office, which is

near-by so as to be convenient to oversee shipments. The metal room is located between the office and the furnaces so that all mixtures, etc., may be made and distributed under the especial attention of the foreman.




TRANSVERSE SECTION.

The total cost of machinery equipment on this job would run in the neighborhood of $1,500.00. This includes brass furnaces and linings, floor grates covering pit in front of furnaces, core oven, a core maker's bench, chipper's bench, band saw, magnetic separator, grinder, tumbler, electric motor, line shaft, stack and crane. A building of the size shown, with brick side walls and structural steel trusses would cost approximately $4,000.00.

## NOTES ON NICKEL.

Ontario, Canada, last year produced 10,095 short tons of nickel. The matte obtained amounted to 22,041 tons, of which quantity 1,259 tons went to England for refining while 8,429 tons came to the United States.

Last year the importation of nickel into this country amounted to 18,598,638 pounds having a value of $2,233,867. The imports were in the shape of nickel, nickel ore and matte, nickel oxide, alloys of nickel with copper, etc. The value of the manufactured articles of nickel was $9,159.

The exports of nickel from this country last year amounted to 8,772,578 pounds, valued at $2,845,663. The previous year the exports were valued at $3,493,643.

According to the advance chapter from the *Mineral Resources of the United States*, a certain amount of nickel, cobalt, and copper sulphides occur with the lead ores in southeastern Missouri, and a considerable saving of these concentrates was made by the Hudson Valley Lead Company and the North American Lead Company, of Fredericktown. The latter company operates a smelter for reducing the metals. The only other production of these ores was made by the Standard Consolidated Mining Company, of Prairie City, in eastern central Grant County, Ore. However, like that of tin, the total output of nickel and cobalt in the United States was insignificant when compared with either the world's output or the amount used in the country. Owing to the fact that the total output can not be given without allowing the individual productions to be known, the figures will not be printed.

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Alloys of platinum and tin containing over 83% of platinum are said to be very tenacious and to have melting points above 1,400° C.

## THE SAMOVAR IN RUSSIA.

### A Household Utensil in Universal Use in the Empire and which could be Introduced in the United States.

American Consul James W. Ragsdale, of St. Petersburg, furnishes the following information concerning the manufacture and use of samovars in Russia:

One of the great industries of Russia is the manufacture of household utensils from brass, nickel, copper, and copper alloys. Kettles, pots, pans, and bowls of every conceivable kind and shape are made and sold by the thousands. The most interesting utensil, and the one of most frequent use in the Russian home, is what is known as the samovar, or hot-water urn. Every house, however humble, has one or more, and they are in constant use. The Russian breakfast is tea and rolls, sometimes with butter and jam added. A fire in the kitchen stove before luncheon time is the exception, hence the popularity of the samovar. These are made in the most beautiful shapes and designs, and have capacity for heating from 12 to 30 glasses of water for private homes, and from 1 to 5 gallons for hotel purposes.

The samovar industry first began about sixty years ago, and has gradually developed until now the annual output averages in value about $2,575,000, and gives employment to many thousands of men, women, and children. In the manufacture of these vessels, until recently, only the lower part, or what is called the podden, or stand, the faucet and handles, were molded, all the remaining parts, namely, the body, the neck that joins it to the stand, the interior pipe, the charcoal tube, and the water compartment were welded out of sheet latten, or thin plates of copper, and the requisite form was given to them by means of hammering, while the lids were made at the factories and forced into shape under pressure by machinery.

Recently, however, a new method of manufacturing the lid direct from the sheet by means of pressing it into a form attached to the rotating spindle of a lathe, and by using a special instrument called divilnik, has been introduced. Under this invention it is possible to manufacture all the parts by machinery. The central tube, whence the heat emanates (being filled with burning charcoal), is either cast or hand forged from brass. The most beautiful of these urns are made from pinchbeck, an alloy of copper and zinc, which gives the vessel a beautiful golden appearance. Many are made from nickel or nickel plate, while others are heavily plated with silver. Those most in use, however, are made from brass and copper. The prices range anywhere from $3.75 to $80.

That the samovar might be introduced into the United States with success seems most feasible. (Illustrations of the various styles of samovars in use in Russia are on file in the Bureau of Manufacturers.)

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## MAGNALIUM PROGRESS.

The American agent for magnalium, Morris R. Machol, 16 Beaver street, New York, is receiving many letters of commendation for this aluminum alloy. Magnalium is an alloy of aluminum and magnesium, first produced in Germany and described in *The Aluminum World* some ten years ago. The progress which has been made with it since then has been recorded in The Metal Industry pages. It is not necessary, therefore, for us to go into a detailed description of it at present, more than to say that it is an alloy which is stronger, harder and machines easier than pure aluminum itself. Its specific gravity is even less than that of aluminum. Mr. Machol has introduced it to a number of American foundries.

# "THE DESIGNING OF PRIZE TROPHIES."

By H. F. Saunders, Del.

"Drawing may be taught by tutor; but design only by heaven."—*John Ruskin.*

The custom of offering prize trophies to stimulate and add interest to sporting events of all sorts has not only fully accomplished this end, but has also created keen competition among manufacturing silversmiths of the country for the honor of making these prizes. This work not only offers an exceptionally good advertisement for the concern, but also demonstrates the skill and and fine workmanship of their designers and craftsmen. Most of these trophies represent the work of every branch of the industry.

First comes the design, which, while most interesting, nevertheless, often proves an artistic problem of the hard-

TROPHY PRESENTED TO 71ST REGIMENT.

est kind for the designer to work out. The principal features of the event for which it is offered or presented must be intelligently and plainly incorporated in such a way that they do not in any way detract from the harmonious effect of the whole piece. At first glance this may seem easy, but it is not so. The greatest care must be taken even to the smallest detail. This will be appreciated by a careful study of the illustration of the "Military Trophy." This is in the form of a large cup or vase, and practically represents the military history of the United States from the Revolution to the Rebellion. The three equestrian figures around the base were made from the most careful models after the works of such sculptors as St. Gaudens, Partridge, and photos from life. I mention this simply to give an idea of the necessary care of detail, yet with this in mind the designer's main aim is to create only a beautiful show-piece, and a well designed object of utility, representative of good taste and skilled workmanship.

Form comes first, whether it be a prize cup, vase, punch bowl, pitcher or wall plaque; next comes good composition, combined with judicious application of ornament. The effect of the whole must be carefully considered and studied. It is not simply a question of making a fancy drawing of, for instance, a golf prize, such as is often seen with some stock cups with a few golf sticks stuck here and there. But they must be carefully worked into the whole scheme or form and decoration in such a way that, while distinctive, will yet harmonize with the whole.

The second illustration represents a prize cup or trophy offered by the Amateur Hockey League, and is symbolic

AMERICAN AMATEUR HOCKEY LEAGUE TROPHY.

of not only the game, but also the countries in which it is played for annually (Canada and the United States). Such features as the eagle, maple leaf, pine, beaver, and laurel being used, it is very necessary that the designer should have a thorough knowledge of the subject in hand and its symbolic relation and detail. To design is to give tangible and definite expression to an idea, based on sound judgment, good taste and the principals of art, whether it be a design for a silver teaspoon or a $10,000 dinner service.

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The American Consul at Port Elizabeth, South Africa, reports that American gold and silver goods, especially the former, are not in demand, due largely to the absence of marks of guarantee. He adds: "As to selling other kinds of American jewelry, including the extension bracelet, the prospects are not good until some mark of guarantee is adopted, similar to the English hall mark."

## PROLONGING THE LIFE OF A CRUCIBLE.*

By Dudley A. Johnson, Chicago.

On the one hand, the crucible maker works along the same lines as the manufacturing chemist or the druggist—that is, everything is analyzed, weighed and measured. He is not infallible and consequently makes mistakes. When a druggist makes a mistake in a prescription, somebody is liable to get off the earth; when the crucible maker makes a mistake it is not quite so serious, but the howl that goes up is fully as loud.

On the other hand, crucible making is somewhat like bread making. Even if you have the proper formula, it does not follow that you will make good crucibles. If your mother should give you complete instructions regarding the making of that famous bread of hers, and you should carry out every detail to your best ability, I would hesitate to partake of the product. It is only after long years of practice that perfection is obtained.

A good method is for the crucible maker to keep a record of each batch of crucibles, say 500 pots made in one batch, at one time, by one man, precisely uniform in every respect, and these are sent out to twenty different customers. If nineteen say: "Fine! send me some more of the same," and one man says "No good," we must conclude that the fault is in that man's shop. When complaints are received from practically every customer who gets a certain batch—the crucible maker knows he has made a mistake.

The perfect system under which he works and the long years of practice in repeating the same operation reduce the chances of mistakes in his shop to a minimum. They are as one to twenty compared with causes of mistakes at the users' end of the line.

Too many brass foundries follow in the old ruts; they let their tongues and shanks get out of shape and don't notice any bad results; they leave their fuel out in the rain and don't think it makes any difference; they throw heavy ingots into the pot and jab it with an iron poker and the crucible seems to stand it all right.

So gradually one bad practice after another creeps in, with the result that a complaint is made to the crucible maker that his pots are not so good as they used to be. The customer will say: "I can remember when we used to get forty heats out of your pots and we can't get half that number now." It reminds one of the oldest inhabitants recalling the terrible winter we had back in the 60's.

Right here I want to say that the records will show that better crucibles are being made to-day than ever before in history. At first it may appear that this is a rash statement—some phenomenal runs are on the old record books—but it must be remembered that in the old days the pots used were much smaller than at the present. Number 35 and 40 crucibles formerly were about the average sizes in use, while to-day 60's and 70's are nearer the average. Everybody knows that as the size increases the number of heats decreases. If 38 heats is the average on size 25, only about 30 heats would be expected on size 60, melting the same kind of metal.

Another reason is that the mixture placed in the pot consisted almost exclusively of copper, tin, zinc, and lead, whereas at the present time the crucibles are charged with metals that contain percentages of aluminum, manganese, phosphorus, nickel, etc. Various fluxes are also used, and all these things have a detrimental effect on the life of a crucible.

The average length of a heat used to be two hours and a half, whereas to-day it is not uncommon to get off a heat in an hour and a half, and frequently the metal is poured within forty-five minutes after the pot is placed in the fire.

So that, if the crucible of to-day runs an even number of heats with one of twenty-five years ago, it must necessarily be a better pot to stand up under the more severe strain of a hotter fire to reduce the metal in half the time, and the injurious effects of various new ingredients which go into it. The records show a *greater* number of heats than in the old days, notwithstanding this severe usage.

Now I am positive that a large percentage of the brass founders can increase the life of their crucibles materially if they will but follow up their shop practice, and in proof of this I want to cite an instance:

Several years ago, one of my friends in the trade happened to mention to me that on a No. 30 crucible his average heats were in the neighborhood of 25, and although he tried several makes of crucibles he did not get any better results; said he had heard other people speak of phenomenal records, but he was inclined to doubt their authenticity.

I told him if he was not getting more than 25 heats out of a No. 30 pot melting his kind of metal, that there was something radically wrong and that by looking over his shop practice perhaps we might see where the trouble was.

We found in the first place that the furnaces which he was using were very wide and very shallow. There was 6 inches to 8 inches of coke space on each side of the pot, with about a 4-inch bottom under the pot. It was a natural draft furnace, and the air coming in from the grate bars below and passing up to the flue-hole, carried the hottest part of the fire off to one side of the pot, with the result that the amount of fuel used was twice as much as necessary to melt the charge. I suggested a furnace that was narrower and deeper, allowing about 3 inches of coke space on each side of the crucible and 6 inches or 8 inches at the bottom. One furnace was built on this plan and the result was so satisfactory that all the rest were rebuilt.

I also advocated the use of a larger crucible, and in parentheses here I would say that the most economical results are obtained by using the largest crucible that can be conveniently handled, consistent with the kind of castings to be poured. It is obvious that if you are making chandelier work, saddlery, hardware or very light stuff of any kind, that a small crucible must be used, because the metal will cool in the pouring, but if heavier castings, such as plumbing work or jobbing work is being poured, a larger crucible will be found more expedient, as all of the metal in the larger pot can be turned into the flasks before it is too cold to run properly and the expense of melting the larger crucible is very little more than the small one. A No. 50 crucible was decided upon.

We then took up the matter of crucible storage. Two rooms were built with solid brick walls with gratings in the bottom and flues at the top, arranged so as to pass all the waste heat from the furnaces through these rooms on the way to the stack. One room was used for burning cores, the other was used for crucible storage, and dampers were placed so that the heat could be diverted into either of the two rooms as needed. This kept the crucible constantly at a high temperature and enough pots were always on hand so that they could be thoroughly seasoned before it was necessary to put them into use.

*Paper read at the Toronto Convention, June, 1908, of the American Brass Founders' Association.

An improvement was noted in the life of the crucible, and we then turned our attention to the fit of the tongs. We had new tongs made of the grab pattern, an overhead squeezing. Two pairs of tongs were used, one for the crucible when it was new, and another after it was partly worn out and had grown smaller. The shanks were overhauled and the clips discarded.

The keeping of an accurate record of the heats was next in order and also a record of the different furnace tenders and it was found that some furnace tenders would require 25% more crucibles and use 25% more fuel in the same work than the man alongside. In order to discover whether the drafts of the furnaces or local conditions had anything to do with this difference, the furnace tenders were switched about, and ultimately it was proven that certain furnace tenders would constantly get at least 25% better results than others from the same furnaces and under the same conditions. These men were gradually weeded out.

To sum up, we would say that at the last report this man has had a general average of 45 heats on a No. 50 pot over a period of nearly a year and a half, as against his old record of 25 heats on a No. 30 pot. We have not the figures on the fuel consumption, but are satisfied that he is using no more fuel with the larger crucible and under improved conditions than he was before.

I might give a number of other instances, but one will suffice. What has been done in one brass shop can readily be accomplished in another.

I have here a list of the causes of the failures of crucibles, and I will point them out to you briefly:

### Storage.

Crucibles should be stored in a warm, dry place, either back of the furnaces on the flues, where the hot gases from fresh fires will not strike them, or on the top of the core oven (Don't put them in the core oven where they come in contact with the moisture from the wet cores); or, if stored on top of the boilers, care should be taken to see that all steam pipes are tight and there are no leaks, and that they are away from the whistle which allows steam to escape. It is generally conceded that a crucible properly stored in a foundry is from ten to twenty per cent. more efficient at the end of a year. They season and solidify, and are away from the injurious effects of the damp air. The longer they are stored in the proper atmosphere the better.

### Annealing.

Before using, the crucible should be slowly brought up to a heat of 250° Fahrenheit, or over, and if this is accomplished too quickly a scalp is the result, or an internal fracture which will afterwards cause a leak. A No. 200 crucible requires about ten hours to bring up to this heat. The pot should then be immediately filled with metal, and a heat taken off, without allowing it to cool.

### Fit of the Tongs.

The fit of the tongs is very important. On crucibles above size No. 50, tongs with double prongs should always be used, and preferably of the "grab" pattern. The upper prong prevents the pot from wabbling, and the "grab" device prevents squeezing. The tongs should grip the crucible below the bilge and lift it without undue pressure, as if it were in a shank or a basket. When a crucible is at white heat it is soft and leathery, and many crucibles are ruined by forcing the tongs together and pounding a ring on the handles. It is a great advantage to have two sets of tongs for every crucible; one for the new pot, and one for the pot half used, which is smaller. The tongs should be "shaped up" at frequent intervals.

### Shanks.

Shanks of the scissor pattern are hard on crucibles, because of the tendency to seize the pot too high up and squeeze it. The plain ring pattern shank is the best. The ring should be wide, and taper to conform to the contour of the crucible. It is not necessary to use clips with this style shank.

### Fuel.

The fuel should be dry. Wet coke produces moist gases and steam, which causes alligator cracks. Sulphur in the fuel shortens the life of the crucible materially. Twenty-five per cent. more heats have been obtained by a change of fuel.

### Position of the Crucible in the Furnace.

At the beginning of the heats, the top of the crucible should never set higher than the bottom of the flue-hole, and if the work will permit, the space around the pot and at the bottom should be sufficient to hold enough fuel to take off the heat without re-coking. A long narrow furnace is much preferable to a short wide one.

### Dampers.

The drafts and dampers, if arranged to produce a reducing atmosphere, will lengthen the life of the melting pot. An oxidizing flame is always unfriendly to a plumbago crucible.

### Clinkers.

The clinkers should be removed from the sides of the pot as the tongs are put on, and from the bottom of the pot before it is set on the floor. It should always be set on a bed of dry sand; never on hard bricks.

### Slag.

In melting scrap and dirty metal, the inside of the pot becomes thickly coated with slag, and this should be removed with a scraper. It can easily be accomplished when the pot is hot. Then the crucible has more holding capacity, and the heat passes through it more readily.

### Soaking.

It is bad practice to leave the metal on the fire after it is ready to pour; soaking in this way an extra half hour has a more injurious effect on the crucible than the entire previous heat.

### Kind of Metals.

The melter must not expect as many heats in melting one metal as another. From three heats in melting nickel, to five or six in melting steel; approximately twenty-five are reached in melting copper, while the heats run into the forties in melting composition. If, when ordering your crucibles, you could give a hint to the maker as to what metal is to be melted, he could know better what crucible to send.

### Flux.

Where it is necessary to use a flux to clean the metal, it must be expected that the life of the crucible will be shortened, as nearly all fluxes attack the binding material in the walls of the crucible to a greater or less extent.

### Cooling Between Heats.

If the crucible can be recharged and put back into the fire at once, a greater number of heats will result than if it is set away and allowed to cool between each heat.

### Length of Heat.

The time of the heat is also to be allowed for. If the heat is taken off in an hour or an hour and a half, the crucible will not last as long as with the lighter punishment of a two to two and a half hour heat.

BUTTONS.

Don't leave any metal to cool in the crucible, but pour until the melting pot is entirely empty. In the parlance of the shop, don't leave the crucible so that you will find a button in the bottom when it has cooled off. These buttons will have small threads or spikes of metal which will attach themselves to the crucible walls, and they tear the walls of the pot as they come out; or, if left in the crucible, when the next heat is taken off, they expand more rapidly than the walls and break the pot.

WEDGING.

Be very careful not to allow the ingots to wedge in charging the crucible, but place them in loosely, or expansion will break the pot.

FURNACE BOTTOMS.

See that the crucible has a good bottom to rest on in the furnace. Some foundries use brick for the crucible to set on after it settles down, and these bricks should be smooth and level. If they get on edge or cornerwise, the hot crucible full of metal settling down on them or on a hard piece of clinker will have a hole punched through the bottom. Remember there is a great deal of weight above the bottom of this leathery pot.

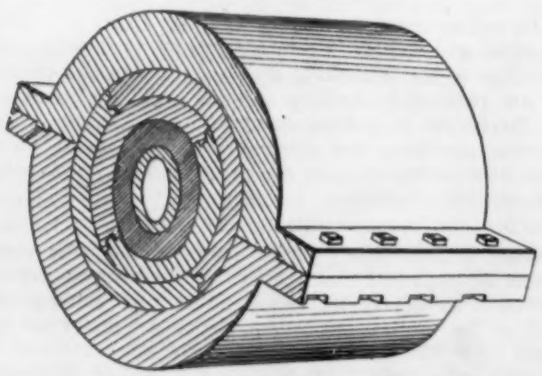
POKER.

Be very careful with the use of the poker, as it is an easy matter to punch a hole through a hot crucible.

In addition, we might say that it is important to always place the pot in the center of the furnace, so that there is an equal fuel distribution all around. It is also good practice to turn the pot partly around after each heat, that is, if the lip of the pot faces the flue-hole to begin with, it should gradually be turned after each heat, until a complete circle has been performed. This assures equal wear on all sides of the crucible.

## APPARATUS FOR SHAPING HEATED METAL.

Frederick J. Loomis, connected with the mechanical department of the National Brass and Copper Tube Company, at Hastings-on-Hudson, N. Y., has obtained Patent No. 900,401, October 6th, 1908, for apparatus for shaping heated metal. The invention consists in the production of a container having the usual inner tube and particularly constructed with pressure resisting means sur-



APPARATUS FOR SHAPING HEATED METAL.

rounding the inner tube. These means include flanged interlocking segmental cylinders surrounding a suitable insulator. The figure shows a perspective view of the device. The principal reason for providing the several concentric cylinders formed in sections is that the apparatus may have the strength of a single cylinder of equal thickness and yet permit of the easy renewal of any part which may become worn or broken.

## ACTIVITY IN THE NAUGATUCK VALLEY.

Activity has again begun to spread up and down the Naugatuck Valley of Connecticut and from every factory comes the announcement of full time, overtime or extensions. Every one is cheerful and happy in this home State of the brass and copper industry and everyone looks forward to a good business winter. As indicating a tendency of the manufacturers to prepare for more business, we herewith record a few of the improvements that are pending and are under construction.

The Scovill Manufacturing Company, of Waterbury, have secured a permit to build a one-story factory, 73' x 111'. The company has not decided when they will build, but when they do they will do the construction work themselves. During the past month the Scovill Company have been running within ten per cent. of its full capacity. The company has also bought some real estate on East Main street, Waterbury, but have no plans respecting the utilization of the property.

The Chase Rolling Mill Company, Waterbury, Conn., has taken out a permit for the erection of an additional factory on East Farm street. The structure will be of brick, one story high, 60' x 120'.

The Blake & Johnson Manufacturing Company, of Waterbury, Conn., makers of brass specialties, have awarded a contract for the erection of a large factory. The structure will be of brick, 200' x 260'. and will contain one story and a basement. The building will be used for manufacturing purposes.

It is also reported that the Randolph and Clowes Company, of Waterbury, have taken out a permit for additional buildings, but no confirmation of this extension was obtainable.

The Waterbury (Conn.) Clock Company have had plans drawn for the erection next spring of a new building, 176' x 42', which will be used in the company's wood-working department. The Clock Company has been operating on full time, even a number of departments, on overtime, and is very busy in the manufacture of watches. It has 3,000 employees and claims to make more watches and more clocks in a year than any other concern in the world.

The citing of these improvements recorded above and of the reports of further extensions and enlargements which are under consideration, but have not yet assumed definite shape indicates the steady and sure growth of the brass and copper industry in the Nutmeg State.

## NEW PLANT AT BINGHAMTON.

As a result of several weeks' negotiations, the Binghamton Chamber of Commerce have succeeded in locating the Georgian Manufacturing Company in Binghamton.

New York representatives of the company have entered into an agreement with the Binghamton Trust Company for the purchase of the lands and buildings formerly occupied by the Innes-Demarest Stove Company, on the Lackawanna railroad and Glenwood avenue, and also for the three acres of land lying between this property and the R. & G. Supply Company, and now owned by the Automatic Musical Company and L. H. Harris.

The entire property will be occupied with factory buildings, which will be used for the manufacture of iron and brass goods.

The election of several buildings in addition to those now on the property is contemplated. Engineers are now in the city arranging for this work to start promptly. The plans which the company now have in mind for the development of the property involve an ultimate investment of $500,000, and the giving of employment to five hundred men

## THE PRODUCTION OF TRANSPARENT LACQUERS FROM PAPER.

By Charles H. Proctor.

The mere mention of the fact that transparent metal lacquers can be produced from paper would, at the first thought, seem to be erroneous, but such, nevertheless, is a positive fact, and lacquers that are produced by paper, in the many experiments that I have made, have proven superior to any other transparent lacquers, on account of their extreme hardness and tenacity. It is well known to many platers and lacquerers, that the basis of all transparent lacquers is soluble cotton, whether they are known by the name of tapon, pyroxlym, or other commercial terms; other names are gun cotton, nitro cellulose.

The standard formula for a stock lacquer, made by a well known chemical house, is six ounces of nitro cellulose or gun cotton dissolved in one gallon of amyl acetate solution, and it can be purchased under the name of amyl acetate collodion. The thinner or reducer, is usually amyl acetate solution, but it is often times mixed with ⅓ benzine to cheapen the cost, but the addition of benzine especially in summer time will cause a partial precipitation of the gun cotton, and also produces a cloudy lacquer upon the metal surface, therefore the best mixtures are fusel oil or denatured alcohol in certain proportions.

Gun cotton is produced by the immersion for a certain length of time of selected raw cotton, free from impurities in a mixture composed of 4½ ounces of pure dry nitrate of potash, mixed with 30 fluid drachms of sulphuric acid of a specific of 1.845. When the mixture is thoroughly cool the cotton is put in for 5 or 15 minutes until the nitration is complete. It is then removed and washed carefully, until every trace of acid is gone. It is then dried by the aid of centrifugal force and compression, and afterwards put in drying chambers.

The material is then highly explosive and much care is needed in the handling, but unlike dynamite it does not explode by concussion but by ignition. I have mentioned these facts for the information of those unfamiliar with the process of manufacture of gun cotton. As I have stated that the mere mention of the fact that transparent lacquers can be produced from paper would seem absurd, but when we realize that the best white tissue paper is made from selected white rags and these rags are made from cotton, it is easy to realize that nitrate of cellulose can be produced in exactly the same manner, with the use of paper, made in the manner mentioned as with the selected raw cotton. From experiments I have made, I believe, the cost of the paper is very little more than cotton, when the cost is considered of the extreme care that must be exercised to remove all traces of impurities from the raw cotton.

Another great advantage of using nitrated paper instead of nitrated cotton, is the great difference in the explosive point of the two materials, that of the paper is very low compared with the cotton. The writer is of the opinion that if the production of transparent lacquers from paper could be made a commercial success many of the objections that we hear from the fire underwriters in regard to gun cotton lacquers would be overcome, as in my experiments there has been no more danger in handling lacquers made from nitrated paper than would result from a regular gun lacquer.

And again, explosions do not always result directly from the lacquers themselves, but to the concentration of the gases in the drying ovens due to the imperfect precautions taken in allowing the gases to escape properly. It is these concentrated gases, coming in contact with naked lights, that cause all the trouble. Lacquers themselves, cannot explode, but the vapors that are concentrated from them will, as in many other cases, explode when in contact with fire. I believe that the ideas embodied in this article is worthy of the attention of manufacturers of lacquers if it is only the means of overcoming the many recent restrictions placed upon the use of transparent lacquers by the fire insurance underwriters.

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### BRITISH NOTES.

An important step has been taken by the Birmingham Chamber of Commerce in altering the name of the Metal Manufacturers Section to that of "The Brass, Copper and Allied Trades Section." The object is to bring within the purview of the section all firms engaged in trade in the non-ferrous metals. It is understood that the section may afterwards divide itself into such subsections as may appear necessary for dealing with special subjects affecting different branches of the trade. It is intended to make a special feature of the aluminum department which is so rapidly assuming important dimensions in the Birmingham district.

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Complaints have been received from Birmingham jewelers with regard to fraudulent trading by a Continental manufacturer in the East. The trader exhibited an exact copy of an English manufacturer's show card and also described certain gilt goods as rolled gold. As the fraud has been carried on in a Crown Colony the Colonial office have been approached on the subject. It is intended to bring strong influence to bear through the Government of the country concerned, and if possible, to take proceedings. Such frauds are a constant source of trouble to various branches of the Birmingham trade.

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A development which is attracting some attention in Birmingham is the rapid increase in the price of platinum. The other day the owner of motor car paid 4s. for the addition of two tiny spots to one of his fittings. The growth of the motor and electrical trades has sent up the price by leaps and bounds, so that platinum is now much dearer than 22-karat gold, and twice as costly as the gold usually on the market. It is well known, of course, that no other metal serves the same purpose for resisting the heat of electrical current, and being effective for quick contacts, so that it is largely used on electric coils and contact breakers.

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There are great complaints about depression in the Birmingham jewelry trade. Little suggestion of this is to be found in the assay returns recently published in The Metal Industry, but jewelers complain that these are somewhat misleading, in that they do not differentiate between home-made goods and those sent to Birmingham for assay purposes. It is also pointed out that goods may be assayed without a market being found for them. There are fortunate exceptions, and it is remarkable that Messrs. Elkington & Co. have had a record year. At the same time, Mr. Haseler, the chairman of the Birmingham Jewelers & Silversmiths' Association, states that he has never known trade worse for twenty years past. There are many hundreds of working jewelers and silversmiths out of employment and short time has been unusually prevalent. So far the autumn activity associated with Christmas preparations has not arrived.

## MAKING MANGANESE BRONZE, FROM THE STANDPOINT OF A FOUNDRY FOREMAN.*

By J. F. Webb.

To make a Manganese Bronze, or rather a Manganese Brass as it should be called, the mixture generally used is composed of copper, 56 parts; copper manganese, 5 parts; zinc, 36 parts; aluminum, 3 parts.

This mixture is one of the high tension brasses, and there are three points the melter has to keep in mind, namely, tensile strength, elongation and fracture. And when made according to specifications the alloy must not have less than 60,000 lbs. tensile strength and 20 per cent. elongation.

In making an alloy of this kind it is necessary to have the best of materials and in making up the charge the first thing we do is to weigh all stock carefully, and if we have gates and heads of the same composition which we have usually, we will use half new metal and half gates, for I find half of each makes a better mixture.

In charging the crucible we put all of the copper in first and with it some of the gates and heads which helps to melt the copper faster, and when all of the copper and gates are melted then we add zinc, then the manganese, and last of all, the aluminum. And I wish to emphasize that manganese bronze can't be mixed and stirred too much. Before the metal is taken from the furnace we have to sample it to see if it is all right, and the way we have of sampling is to take a long ladle and dip out about a pint and pour what we call a sample bar ¾" x ⅜" x 9"; this is the melter's test. The test pieces we cool in water, take and stand it up in the vise to try the strength of it, for we can generally judge the strength by the amount of hammering it will stand and how far it will bend before breaking. And if we find it very stiff and hard to bend it needs more elongation. The way to get more elongation is by keeping the mixture in the furnace 15 or 20 minutes longer with a good heat on, and we may also add a small hand scoop of turnings of the same mixture, which will give more elongation and also helps the fracture.

Then we take another sample test bar and go through the same operation in the vise, and should we find it too soft and easy to bend we add a little aluminum to harden it. Sometimes we have to try two or three times before we get the metal where we want it. Then we pour the molds; also pour the standard test bar that goes first to the machine shop to be turned to size and then to the testing-room to be tested, and it is there determined whether the castings shall be accepted or not.

But we have sampled this metal so much in the vise that we can generally tell whether it will stand the physical test. We pay fully as much attention to the test bars as we do to the castings, for if the test goes, so do the castings.

At times we have to use eight and ten crucibles on one casting, and to make sure that the metal is all right and ready we melt and test, and pour into pigs to be ready for use when wanted. We also accumulate gates and heads for the same purpose.

This alloy, like all others, has its own peculiarity; that is, it leaves the sand very clean, aluminum is good for that, but it has a very bad habit of shrinking, and in making a good deal of our work, we have to put on such large heads that we often have as much metal in gates and heads as there is in the casting. But the heads have to be there, and should there be several hubs or bumps or heavy corners on the pattern, there has to be a head to take care of each one. The alloy also has some good features. It runs very solid and dense, as is the case with any metal that has much shrinkage. And it works very easily in the machine shop and has the appearance of gun metal. It can also be worked hot on the anvil just like a piece of good copper. And I believe it can be forged into most any shape, for I have seen it twisted like an auger.

*Paper read at meeting of Tri-City Associated Foundry Foremen.

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### SIMPLE SYSTEMS FOR KEEPING TRACK OF ADVERTISEMENTS.

The tracing of results from advertising is a problem which has perplexed many firms and has produced many methods. It is probable that there are as many systems in use for keeping track of the results from advertising as there are cost systems for manufacturing, and many of these advertising systems are quite as intricate and useless as some of the cost systems which have been devised. We herewith describe two similar systems for keeping track of advertising inquiries, each of which is very simple. One is devised by Tate, Jones & Co., of Pittsburg, Pa., engineers and furnace builders, and the other by the William Cramp & Sons Ship & Engine Building Company, of Philadelphia, Pa., builders of ships and founders of brass and bronze castings.

245 _____

_____

To assist us to trace the source of our inquiries we would thank you to indicate below where you obtained our name.

Tate, Jones & Co., Inc.

_____

We saw your advertisement in _____
We saw your apparatus at _____
We heard of you through _____

_____

THE CARD REFERENCE.

The Tate-Jones system is simply to mail the card shown in cut with a return stamped envelope to any inquiry which does not state the source where it heard

TATE, JONES & CO., INC.,
806 EMPIRE BLDG
PITTSBURG, PA.

THE RETURN ADDRESS.

of the manufacturer, and Tate, Jones & Co. state that 75 per cent. of the cards are returned. These cards are then filed away in a case according to the paper mentioned and at the end of the year the firm knows the number of inquiries they received from any one paper and by a little calculation can tell the amount of business that they secured from any one journal.

Tate, Jones & Co. also keep track of every inquiry they receive from other sources, such as references from other firms, and by this thorough and simple inquiry system they know from just what sources they are getting their business. Besides being liberal advertisers

in many trade journals, they also subscribe for all the good ones, securing considerable business from the careful reading of them.

The Cramp system is similar to the one mentioned above, excepting that it is on a postal card instead of a filing card, though the postal can be filed if desired.

It can be seen at a glance that these methods of tracing the results from advertising are easily looked after, are easy to refer to and are really the fairest way of all to the respective trade journals, for but few inquirers note the key addresses or other methods of recording advertising inquiries, and likewise seldom mention the paper which is the source of their information. Many an order has been secured through advertising in trade journals and the trade journal entirely lost sight of in the transaction. The inquiry may come from the buyer of a firm who has been requested to inquire by the superintendent, metallurgist or foreman of the company, and which department head is a home reader of a trade journal in question and noted the supply, machine or device in looking over the paper evenings, but by the time the inquiry reaches the manufacturer and the transaction is closed the paper which was instrumental in making the sale is generally forgotten.

## THE RELATIVE ADVANTAGES OF THE PHYSICAL AND CHEMICAL EXAMINATION OF MOLDING SANDS.*

By Heinrich Ries, Ph.D., Cornell University.

The few notes presented in this paper are given mainly with the hope that they may bring forth some discussion on a subject to which comparatively little attention seems to have been given.

As is probably well known to all who have looked into the subject, the successful use of sand for casting purposes, whether for molds or cores depends on certain physical qualities, such as bonding power, permeability, porosity, refractoriness and durability under use, all of which should be naturally developed to the necessary degree, and few of which are usually increased by artificial means, except the cohesiveness which is often increased in core sands and sands for steel castings by the addition of binders.

At the present time the suitability of a foundry sand is most often determined by a practical test, but few foundries giving any attention to a laboratory examination. Indeed there seems to be doubt in the minds of many, whether a laboratory test is of value. At some works sieve tests are made, at others a chemical analysis, and in rare cases both are tried. Only a very small number of foundries buy their sands according to specifications, but a large number purchase them on the recommendation of the foundry foreman. As a result of this we sometimes find the same sand being tried by two different foundries for exactly the same kind of castings, and the one reporting it to be of very satisfactory quality while the other turns it down as nearly worthless.

With such a rarity of application of laboratory methods of testing it is therefore not surprising that no attempts have been made, so far as the writer is aware, to establish any standards to which sands should conform, much as these are to be desired. Such tests to be satisfactory should of course determine the degree of development of the several important physical characters in the sand, and if necessary look into the chemical composition, if that will aid us any. It may be stated here that the aim of the present paper is largely to call attention to the fact that he chemical analysis is of little value in most cases.

*Cohesiveness.* The cohesiveness or bonding power of the moist sand is an extremely important property, for without this the material does not hold up properly in the mold. It is dependent no doubt on the amount and character of the clayey matter which the sand contains, and also on the coarseness of the sand grains. An increase in the amount of clay and a decrease in the size of the sand grains tends to increase the bonding qualities.

No good test for determining the bonding qualities of the sand has thus far been devised. The mechanical analysis, which shows us the amount of sandy and clayey matter present in the sand will, it is true, throw some light on this point, and may be used as an approximate index of its cohesiveness. Thus, for example, of the two sands, whose mechanical analyses are given below, No. 1 is coarse grained and does not cohere even when moist, while No 2, showing a considerably higher percentage of fine sand and clay, has good bonding qualities.

| | I. | II. |
|---|---|---|
| Size mesh. | Per cent. retained. | |
| 20 | 11.13 | .09 |
| 40 | 12.08 | .45 |
| 60 | 21.93 | 1.51 |
| 80 | 4.33 | .31 |
| 100 | 19.16 | .74 |
| 250 | 30.01 | 66.79 |
| Clay | 1.35 | 30.08 |

I. Core sand, Rochester, Mich.
II. Stove plate sand, Conneaut, O.

It has been suggested that the cohesiveness be tested by the tensile strength, but the results do not in all cases appear to be satisfactory. Experiments made by Parmelee† to determine this point showed: 1. That the tensile strength varied with the tamping which the sand received, and 2. That there appear to be no direct relation between the average fineness and the tensile strength. It was concluded from this that the tensile strength did not stand in any direct relation to the bonding power.

Turning to the chemical analysis we find at once that there is no relation between the bonding power, and plasticity and the percentage of alumina as is sometimes claimed. Two analyses will serve to illustrate this point:

| | I. | II. |
|---|---|---|
| Silica | 66.12 | 70.24 |
| Alumina | 16.54 | 16.62 |
| Ferric Oxide | 4.46 | 3.94 |
| Lime | .40 | .08 |
| Magnesia | .22 | .09 |
| Potash | 2.67 | 1.41 |
| Soda | .35 | .74 |
| Titanic oxide | .14 | .46 |
| Water | 4.90 | 4.16 |
| Moisture | 4.15 | 2.42 |

No. I. is a coarse grained gravely sand, while No. II. is a fairly plastic loam.

Still another example may be given. Of the two following analyses No I. is a well known molding

*Presented at the Toronto Convention, June, 1908, of the American Brass Founders' Association.

†N. J. Geol. Surv. Ann. Rep. 1904.

sand used for stove plate and brass work, and much employed throughout the eastern and central States, and while No. II. is a sandy brick clay of sufficient plasticity and cohesiveness to be used for brick manufacture.

| | I. | II. |
|---|---|---|
| Silica | 79.36 | 90.00 |
| Alumina | 9.36 | 4.5 |
| Ferric oxide | 3.18 | 1.44 |
| Lime | .44 | .10 |
| Magnesia | .27 | .10 |
| Potash | 2.19 | trace |
| Soda | 1.54 | trace |
| Titanic oxide | .34 | .70 |
| Water | 2.02 | 3.04 |
| Moisture | .74 | — |
| | 99.46 | 99.98 |

Judging from the analyses, some might conclude that I. was more plastic because of its lower silica and higher alumina contents, whereas as mentioned above the reverse is true.

*Refractoriness.* Foundry sands should be sufficiently refractory to prevent the pores closing up by fusion when the material is exposed to the heat of the molten metal. Were this to occur there would be no openings for the gas to escape. Few tests have, to the writer's knowledge, been made to determine this point, but it would seem that a good method might consist of exposing pressed cubes of the molding sand, to a temperature equal to that which they are to be subjected to in casting. The degree to which they become fused or vitrified could then be determined.

Two sands showing the same quantity of fusible impurities will not necessarily be of equal refractoriness, for much depends on the texture of the material, the coarser one showing the greater refractoriness, other things being equal. In every sand we can roughly separate the grains into two groups, i. e., the silicious or refractory ones and the clayey or non-refractory ones. If the sand contain only the former it is apt to be very refractory (sand for steel castings), while if any clayey matter be present it will tend to flux with the silica grains if heated high enough, this fluxing action being the more intense the finer the silica particles.

Since a coarse-grained sand is likely to be more refractory, and a clayey or very fine-grained one less refractory some inferences may be drawn from the mechanical analysis.

The chemical analysis yields us information on this point only within very wide limits, permitting us to conclude that sand with a large quantity of fluxing impurities would not stand as much heat as a steel casting sand with, say 98 per cent. silica. Among most sands it is difficult, however, to make any predictions what their fire resisting qualities are likely to be if we have only the chemical composition to guide us, because texture plays such an important role.

*Texture.* This property is of much imporance, for as has already been pointed out it may affect the cohesiveness of the sand, and also the refractoriness. But, more than this, it stands in close relation to its permeability, and determines also to a large degree the grade of metal work that can be cast in it.

The texture and average fineness may be determined by means of a mechanical analysis, made by passing the sand through a series of sieves, and separating the finer portions by settling in water. This not only gives us the percentage of different sized grains, but affords us a means for calculating the average fineness.* The average fineness can, however, be still more accurately determined from permeability tests made with a special apparatus, and based on the principle that the greater the average fineness the lower the permeability.**

The chemical analysis of a sand throws little light on its texture and structure, as an examination of any series of tests will show, but a few examples will serve to emphasize this point.

Thus in the four sets of chemical and mechanical analyses given below, Nos. I. and II. agree closely in their chemical composition, but differ markedly in their texture, and the disagreement of III. and IV. is still more marked, although their chemical analyses are very much alike.

Chemical Analyses.

| | I. | II. | III. | IV. |
|---|---|---|---|---|
| Silica | 79.36 | 79.38 | 84.40 | 85.04 |
| Alumina | 9.36 | 9.38 | 7.50 | 5.90 |
| Ferric oxide | 3.18 | 3.98 | 2.52 | 3.18 |
| Lime | .44 | 1.40 | .06 | .06 |
| Magnesia | .27 | .54 | .21 | .14 |
| Potash | 2.19 | 1.80 | 1.29 | 1.65 |
| Soda | 1.54 | 1.04 | .65 | .83 |
| Titanic oxide | .34 | .44 | .44 | .78 |
| Water | 2.02 | 2.50 | 1.49 | 1.57 |
| Moisture | .74 | .80 | 1.76 | 1.11 |

Mechanical Analyses.

| Size mesh. | Per cent. retained. | | | |
|---|---|---|---|---|
| | I. | II. | III. | IV. |
| 20 | .26 | .06 | .09 | .19 |
| 40 | .51 | .12 | .41 | .19 |
| 60 | 2.53 | .32 | 2.21 | .39 |
| 80 | .99 | .16 | 2.67 | .19 |
| 100 | 4.19 | .83 | 17.37 | .98 |
| 250 | 79.85 | 73.38 | 58.20 | 81.92 |
| Clay | 11.24 | 24.73 | 19.02 | 15.97 |

I. Albany sand used for stove plate work. II. Stove plate sand, Newport, Ky. III. Sand for general work, Petersburg, Va. IV. Sand for general work, Fredericksburg, Va.

(To be Continued.)

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The Goldschmidt Thermit Company, of Essen-on-Ruhr, Germany and 90 Wall street, New York, have produced a new purifying agent called "Calcium Silicide," which possesses the property of reducing the last traces of sulphur in the manufacture of steel. A further field which the company says, promises well for the utilization of this new product, is the refining of nickel or copper and in the manufacture of bronze castings.

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The Haitian Congress has sanctioned the coinage of an additional 2,000,000 gourdes in nickel coin. Such coin has no guarantee other than the Government's credit. This form of money has been chosen instead of paper currency as it can be rapidly delivered, while paper money will take at least two months for printing, seasoning, etc. The nickel money costs considerably more in proportion to value than the paper money, but the desire of the Government to put the money rapidly in circulation is so great that this difference in cost is not taken into consideration. The nickel is to be coined in the United States and is to make up the deficiencies in the revenues.

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*Wis. Geol. & Nat. Hist. Surv. Bull. XX.

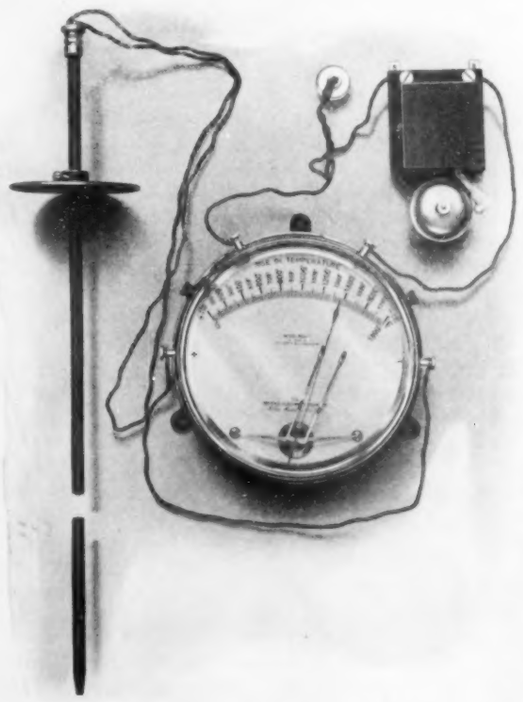
**See forthcoming report on Molding Sands of Michigan, published by Mich. Geol. Survey.

# INDUSTRIAL

NEW AND USEFUL DEVICES, MACHINERY AND SUPPLIES OF INTEREST TO THE READERS OF THE METAL INDUSTRY.

## A NEW ALARM PYROMETER.

The principle of operation of thermoelectric pyrometers is now quite generally understood so that in describing the Alarm Pyrometer, which is the latest development in industrial high temperature gauges, we shall only lay stress upon the fact that the thermoelectric pyrometer, aside from its alarm attachment, does not employ any electric current other than the one that is generated in the thermocouple by the heat of the furnace and by the measurement of which the heat is, in effect, measured. From an ordinary pyrometer indicator one takes readings as indicated by the pointer passing over a scale or series of calibrations. Now in many processes there are maximum and minimum temperatures between which it is necessary, or at least advantageous, to conduct the heat treatment. They are the danger points in the process.



NEW ALARM PYROMETER.

A thoroughly conscientious man, responsible for maintaining the heat, must give constant attention to his pyrometer indications in order to avoid running out of the prescribed limits. This keeps his attention at times from being given to other details. Less conscientious men will carelessly fail to maintain the proper heat if they feel reasonably sure they are not likely to be caught doing so. Hence the idea for making a pyrometer that would automatically sound a bell alarm if the heat should not be within desired limits.

Brass and copper annealing, galvanizing, tinning and even melting preparatory to casting, constitute the important part of the field among non-ferrous metals for the application of the Alarm Pyrometer.

The accompanying illustration shows the complete pyrometer. At the left is the fire-rod (thermocouple), which is made in required length, and the circular disc shown is a convenience in setting the fire-rod to the proper depth in annealing furnaces. The wires in the illustration are of course shorter than could be used in practice and are purposely so to clearly show what points they serve to connect. Two wires leave the fire-rod and go to the binding posts of the indicator and they are the wires of the pyrometer proper. The current from the fire-rod is what deflects the pointer of the indicator and it does so by going through a rotating coil in the instrument to which the pointer is rigidly attached. But this current does not go through the pointer itself, though another current, brought from the lighting circuit or from batteries, does go through the pointer when the pointer touches either of the two fingers set for giving the alarm. The contact between pointer and alarm finger is a gentle one, but good electrical contact is obtained by a short iridium cross pin which may be seen on the pointer and which touches a carbon tip at the end of the alarm finger. The alarm circuit, in which is of course the bell, is operated under 110 volts or more, which is the final insurance of the prompt sounding of the alarm when the pointer touches either finger. The two currents passing through the indicator are wholly separate. The current for the alarm enters and leaves the instrument at the top set of binding posts.

The alarm fingers are under the glass but, where pivoted, they come out through the glass and the setting of the position of the alarm fingers is as simple as the turning of the wrist. One or both of the alarm fingers may be set out of the scale limits and the pyrometer used for a one point alarm or without alarm. There is a way to prevent anyone but the foreman from changing the position of the alarm fingers. The diameter of the gauge is 10 inches. It may be near or far from the furnace and the bell may be near or far from the gauge.

This new alarm instrument is being put on the market by Wilson-Maeulen Company, No. 1 East 42nd street, New York, also makers of The Advance Electric Pyrometers.

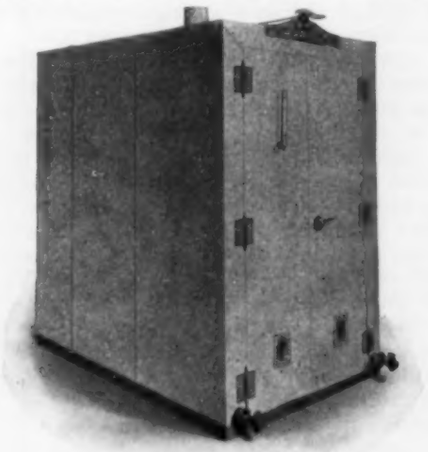
## THE GEHNRICH SECTIONAL OVEN.

Several unusual features are incorporated in the latest models of the Gehnrich Sectional Ovens, which for twelve years have been made by Hermann Gehnrich, 518 Water street, New York. These ovens are used in lacquering, core-making, japanning, enameling, drying, tempering, etc. They are not only portable but possess also the unique advantage of being extensible, so that additional capacity can be obtained at any time by simply adding one or more new sections to the old oven.

The different sections are held together with a patent binding slide, no bolts being used; consequently the taking down or the erection of an oven is a simple matter that can be successfully accomplished by unskilled laborers. This feature will appeal strongly to the small manufacturer in rented quarters, who, for obvious reasons, does not desire to install a permanent plant. A

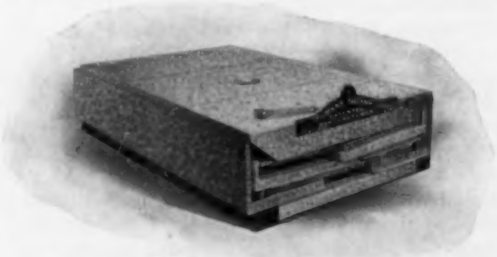
further advantage is the small space occupied by the oven when packed for shipment, the sections being "knocked down" and placed one upon the other, a very small crate sufficing for the whole. Freight and cartage charges are thus reduced to the minimum.

Expansion and contraction of the walls of the oven take place without warping, due to the fact that there are no bolts to interfere with the free movement of the



THE STANDARD SIZE OVEN.

sections; at the same time the escape of heat through the joints is prevented by the tight-fitting slide previously referred to. Each section of the oven is made double, of galvanized iron, and lined with molded asbestos blocks. The doors are fitted with a triple locking device that holds them tight at top, bottom and middle. Each oven is fitted with hooks for adjustable shelves or racks, and



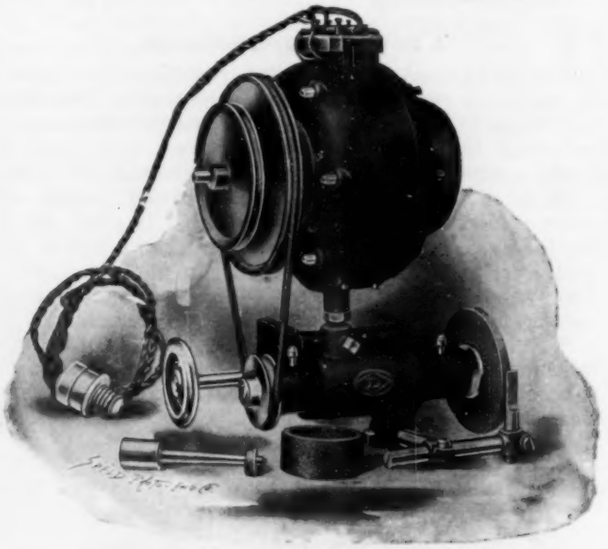
STANDARD SIZE OVEN KNOCKED DOWN FOR SHIPMENT.

has a thermometer attached to the door. Bunsen burners, gas-blast radiators, steam coil, or other heating devices, as desired, are furnished.

Gehnrich ovens have been installed in a large number of well-known plants: The Edison Phonograph Works at Orange, N. J. bought two in 1900 and two more in 1906; The Sprague Electric Company have had three in daily use since 1898, and two others for a shorter period; the Metal Stamping Company, New York, have a battery of five ovens; Lewis & Conger, Eureka Spring Company, Duplex Folding Pail Company, A. Knoche & Brother, Mendelson & Finkel, H. H. Upham & Company, Francis Keil & Son, all of New York City, and many other concerns use these ovens. They have also been approved by the New York Board of Fire Underwriters.

### TOOL POST GRINDER.

This grinder is adapted for use in the tool post of a lathe, planer, shaper or milling machine for grinding cutters, reamers, dies, rolls, lathe centers, etc., and also for surface and internal grinding. It has an independent feed of over 3 inches by worm and hand wheel, which makes it convenient for use in lathes without a compound rest. One of its best features is the mounting of the motor above the grinding spindle, which renders it possi-



DIAMOND TOOL POST GRINDER.

ble to get the proper speed for different sizes of grinding wheels. This is not easily done when the wheel is mounted directly on the motor shaft, because no motor should run as fast as the small wheels ought to. Motors are furnished for use with alternating current as well as direct current and will develop 1/3 horsepower.

This grinder is built by the Diamond Machine Company, of Providence, R. I.

### COMPOSITE SHEET METAL.

The Colonial Steel Company, Pittsburg, Pa., have been manufacturing for a year past a composite metal of welded copper and steel or welded brass and steel; this can be done in any thickness of either metal and copper can be welded on steel on both sides or brass on both sides, or copper on one side and brass on the other. They have successfully pursued this for over a year. Welding the copper or brass to a steel billet with the desired thickness of copper and brass on the steel, it is then rolled out into sheets and it acts as one metal, preserving the relative proportions of both metals and elongating as one metal, which proves beyond question that it is a true weld. It has been made from ½-inch thick steel plates with copper on one side to 28 gauge with brass on both sides, or copper on one side and brass on the other.

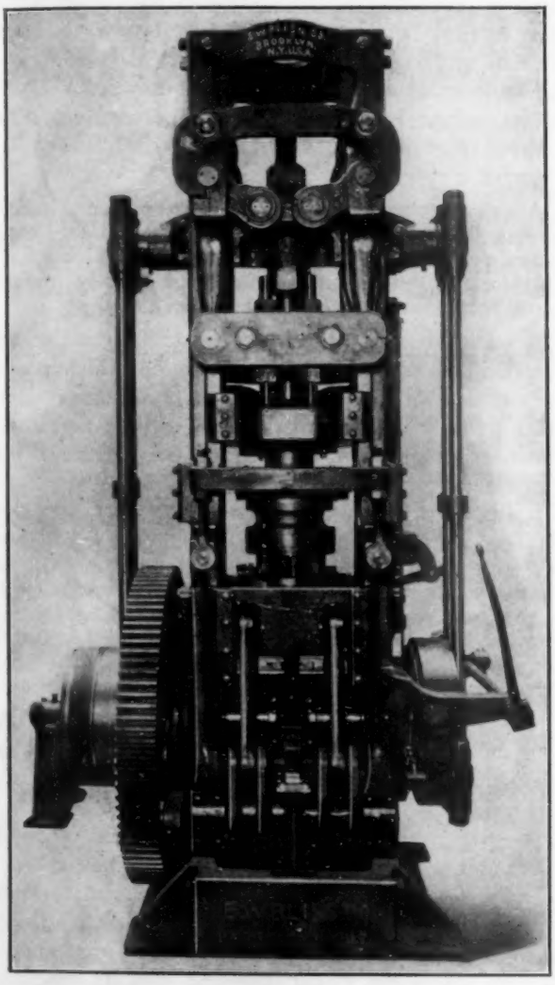
It can be rolled to any size and has been rolled regularly in all gauges down to 28 gauge, 40 inches wide and 8 feet long. Sheets ½ inch thick with 10% copper on them for firebox purposes have been made and are being tried. The company says it will stamp and spin the same as brass and copper, and for such purposes as making tubes for brass bedsteads or railings, for the sheeting of boats, for locomotive fire boxes and boiler sheets, for cornices and window and door frames and all purposes where the surface of the metal needs to be polished or non-corrosive and at the same time have the strength of steel, the product is desirable. The copper and steel, or brass and steel, are thoroughly welded and will not part when subjected to heat, and

being solid they have no galvanic action and will retain their relative proportion throughout any operation.

A similar composite rolled sheet metal has been manufactured in Germany for a number of years.

### A NEW "BLISS" TRIPLE ACTION DRAWING PRESS.

In all branches of sheet metal working, the tendency is to combine operations so as to do in one handling what formerly required several, in this manner materially reducing the cost of production. We show in the accompanying illustration a new triple action drawing press placed on the market by the E. W. Bliss Company, No.



TRIPLE ACTION DRAWING PRESS.

23 Adams street, Brooklyn, N. Y. It is the development of the "Bliss" Patent Toggle Drawing Press, which is used for drawing all kinds of sheet metal goods. This type is presented to press users as being especially useful and economical for drawing deep seamless shells. In addition to the plunger it has two slides, each of which have an independent dwell, thus permitting of making in one operation work which has hitherto required two. This method does away entirely with handling or annealing the first operation shells, inasmuch as the second operation immediately follows the first, making the second draw while the metal is still warm from the first operation.

The press shown in cut will receive a blank 25 ins. dia. No. 24 U. S. standard gauge maximum thickness, and a drawing punch up to 16 ins. dia.; it will draw and lift out up to 19½ ins.

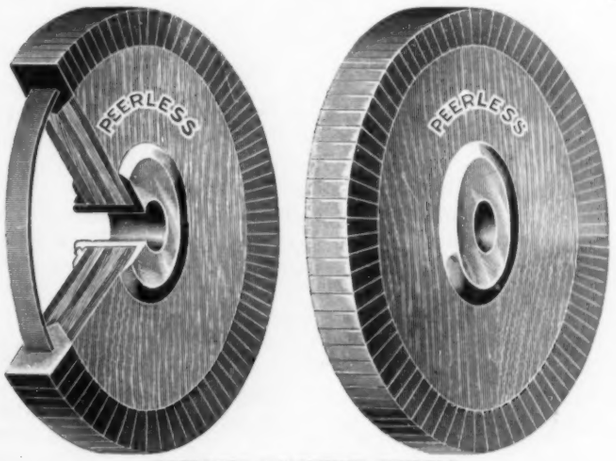
The press has been designed along entirely new lines and the special features embodied in it are interesting to note. The lower table, carrying the dies with the blank, is raised to meet the stationary blank holder by means of the toggles, then the first operation punch comes into action and makes the first draw, after which the first operation punch becomes the second operation blank holder, and the center plunger carrying the second operation punch acting in turn now draws the blank through the second operation die, after which the lower table carrying dies recedes, which action in conjunction with the lower positive knockout places the drawn shell free on top of the die ready for removal.

The press is of very compact construction as will be seen from the illustration, and occupies no more room than any double-action press of the corresponding size for the second operation shell.

Some of the principal dimensions of the machine are: Floor space over all, 111 in. F. & B. x 131 in. R. & L.; top of frame to the floor, 189 in.; proportion of gearing, 21½ in to 1. Fly wheel, 54 in. dia. x 8 in. face, weighing 2,300 lbs.; total weight of machine approximately 60,000 lbs.

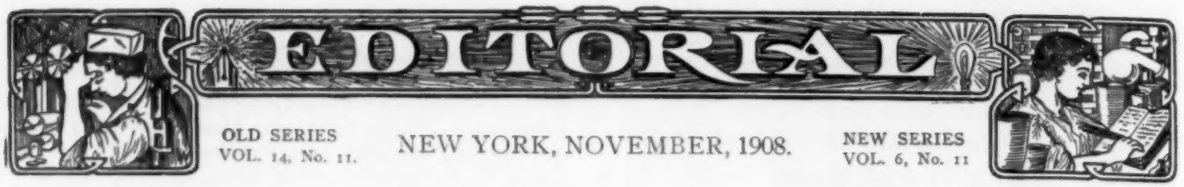
### THE PEERLESS POLISHING WHEEL.

A unique form of polishing wheel which is designed with the object of utilizing the end or cross grain of the leather in polishing, rather than the side surface, is shown in the accompanying cuts. The wheel is built in a novel fashion. First a V groove is cut in a wooden wheel, then pieces of leather are cut out to the form of the wheel and slotted that they may be strung




PEERLESS POLISHING WHEELS.

on the iron band, shown in the cut. They are then glued together, also glued to the wooden hub and finally the wheel is turned perfectly round in a lathe. It is then ready for the glued emery. The manufacturers claim for the wheel that it will not blister when used on heavy work and will do one-third more grinding and polishing with a single surface of emery than the old style of wheel. The manufacturers assert that they use only the best quality of leather and best seasoned pine in the manufacture of their product. They report that one of their wheels has been in use for seventeen years and is still being used. The Peerless Polishing Wheels described above and accessories are manufactured by The Pfleghar Hardware Specialty Company, of New Haven, Conn.

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# THE METAL INDUSTRY

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### BRONZE STATUARY APPRAISED AS MERCHANDISE.

An interesting decision was made recently by the Board of General Appraisers of the Treasury Department in the matter of the protest of B. Altman & Company against the assessment of duty by the collector of customs at New York. The question at issue was over the importation of a bronze bust of Louis XVI, valued at 800 francs. It was assessed at 45 per cent. ad valorem under paragraph 193, tariff act of 1897, which is as follows:

Articles or wares not specially provided for in this Act, composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or other metal, and whether partly or wholly manufactured forty-five per centum ad valorem.

It was claimed by the importers to be dutiable at 15 per cent. ad valorem under the section which provides for the importation of paintings and statuary. But in order to fully understand this section it is necessary to consider paragraph 454 which defines "statuary"; this is as follows:

Paintings in oil or water colors, pastels, pen and ink drawings, and statuary, not specifically provided for in this Act, twenty per centum ad valorem; but the term "statuary" as used in this Act shall be understood to include only such statuary as is cut, carved, or otherwise wrought by hand from a solid block or mass of marble, stone, or alabaster, or from metal, and as is the professional production of a statuary or sculptor only.

It was claimed by the importers that this statue was wrought by hand from metal and was the professional production of a sculptor within the meaning of the above paragraph.

The argument of the Government rested upon this point, and while considerable testimony was taken the Board states none of it showed any unusual method in the production of the bust. The decision states that the bust itself was not in evidence, neither was any one brought before the Board who had seen its production, and it must, therefore, be considered as a piece of ordinary bronze statuary, sometimes termed "commercial statuary," produced by casting from a model made in some plastic material under the hand of the artist. In the case of Tiffany *vs.* United States the court used the following language:

The artist's handwork in preparing the clay model is in no sense the work which transforms the metal itself into the statue, and the fact that some "touching up" or smoothing or chasing is put upon the casting after it comes from the mold is not sufficient to entitle it to classification as statuary wrought by hand from metal, especially in view of the testimony of appellant's witness that there are bronze statues made from metal not by casting but by beating. The amendment was inserted to accom-

plish a purpose, and its language is so plain and unambiguous that a construction which would eliminate it can not be adopted. It manifestly excludes from the provisions of paragraph 465 (act of 1890) all metal statuary which is not wrought by hand from the metal, and statuary which is substantially made by casting is not so wrought, although it may be afterwards surface-finished by workman or artist.

The case of the United States *vs.* Tiffany was relied upon by the protestants and is distinguished from the above mentioned case in the following:

After the various parts had been cast, the important work, that which gives it its distinctive personal character, was done by hand, the sculptor carefully going over the figure and making the alterations and changes necessary to embody his ideas. It is this artistic feature, this expression to the sculptor's intentions, which gives value to the statue, not the price paid for the bronze and ivory. No one but a sculptor of the highest merit could have cut the ivory face, so symbolic of the horrors of war, or fashioned the cloak which is considered one of the most wonderful pieces of bronze in existence. In short, the statue was the work of Gerome, and to its minutest details he gave the best work of his brain and hand.

The Board says that the testimony shows clearly that repoussé work, or work produced by hammering and entirely wrought by hand, has been known from remotest times, but it does not think that this method of producing bronze or metal statues by hand has been very extensively used. It is of the opinion that, in view of the ease with which commercial bronze statuary may be produced by the hand of a skilled artisan entirely independent of the artist, that it was the intention in the above paragraph to prohibit the importation of such pieces of casting, and thereby protect our bronze foundries. It is assumed by the Board that this particular piece was produced in the ordinary way and that practically all the hand work done upon it was done by the artisan at the foundry, this work being the removal of seams and imperfections, and the general touching up of the surface of the figure. The Board held that the bust was not "wrought by hand from metal," and the decision of the collector was affirmed.

It would seem from the above that the distinguishing feature separating statuary proper and commercial statuary is the amount of work put upon the piece and also by whom it is performed. To rank as statuary it must be done by a sculptor, since no amount of work put upon the piece by the artisan in the foundry, no matter how skillful he may be, will elevate it to the rank of statuary. The Board's interpretation of the act is evidently in accord with the intention. While not interfering with the importation of works of art under the lower rate, the decision will do away with the importation of works made in duplicate, no matter how artistic the original may be, unless they pay duty at 45 per cent. ad valorem.

But there is one aspect of the question which is bound to crop out in the future. If an artist prepares a model and then personally retouches the casting, that piece will come in as the work of the artist under the lower duty. If the artist does this repeatedly on the same subject, when will the work of the artist cease to be considered as such and when will mere duplication enter? There must be a line of demarkation. Under the strict wording of the law such pieces, as being the production of the sculptor, would be entitled to entry at the low rate, but in equity the sculptor would probably be considered as having become an artisan and his work would be commercial. In previous cases it has been contended that the piece only becomes a work of art when the personal attention of the sculptor has increased the value of the finished piece beyond that of the material and manual labor expended upon it.

## S. D. V. BURR.

It is with much regret that we record in this number the loss of our Managing Editor, Samuel De Vere Burr, who died October 28th, 1908. Mr. Burr had been on the editorial staff of THE METAL INDUSTRY for two years and a half and his valued work is told in the pages of this journal. No reader of a newspaper, who has never taken part in newspaper work, can realize the amount of patient and discriminating labor that is necessary in the preparation of a trade journal that is worthy of the name. It takes days and hours of careful reading, thoughtful editing and able writing that a paper may be presentable, instructive and attractive, and the editor must labor accordingly to fulfil these requirements. Though he works behind a curtain, so to speak, his presence is ever made known by the character of his paper, and that S. D. V. Burr was one of these painstaking editorial workers is evidenced by the respect with which he was held in the field of trade journalism. For the past twenty-five years his editorial writings have, no doubt, been appreciated by thousands of readers. With all of his exacting duties he always carried a cheerful disposition and a marked sense of humor which made his work rest lightly on his shoulders. We regret to record his death. THE METAL INDUSTRY has made suitable arrangements to carry on the work of which Mr. Burr was an important part.

## DISCUSSION.

We wish to again refer all of our readers to the discussion which is now going on in THE METAL INDUSTRY regarding the cleaning or not cleaning of nickel anodes. For the past three issues we have published lengthy opinions on each side of this subject and the end is not yet in sight. We believe that the thorough debate on this subject by experts will be of particular benefit to the leading workers in the plating trades.

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The National Government of Chili has directed that a large number of cities put in complete water and sewerage systems. This means a greatly increased demand for all plumbers' supplies. Heretofore the demand for this class of goods has been limited to Valparaiso and Santiago, while from now on it will be much more general and the demand should be soon doubled. Only a small part of this business is done by the United States.

CRITICISM AND COMMENT
WE CORDIALLY INVITE READERS' OPINIONS AND CRITICISMS OF ALL ARTICLES
PUBLISHED IN THE METAL INDUSTRY. SUGGESTIONS WELCOME.

## THE CLEANING OF NICKEL ANODES.

To the Editor of THE METAL INDUSTRY:

The promptness with which my criticism of Mr. Gilchrist's article on cleaning nickel anodes is taken up is a good indication of how important the question is. It was my intention when I wrote my former letter to call forth the opinions of those interested. In the further arguments which I advance, I will confine myself to Mr. Gilchrist and his theories, as he has unquestionably given the matter considerable attention. The other letters are scarcely arguments in favor of using dirty anodes as they contain no figures bearing on the subject, and in this enlightened age, facts and figures (and in this case chemical theories also apply) are alone worthy of consideration. I will take up Mr. Gilchrist's comments in order.

With regard to rolled and cast nickel anodes, I will remark that the use of rolled anodes "exclusively" is without question obsolete (or should be), but the theory and application of proper proportioning of rolled and cast anodes is so up-to-date as not to have become well known in this country.

My ideas on this subject were originally derived from Dr. Langbein's book and my application of his theory has proved it to be of value. It will only prove of value, however, under carefully studied conditions; *i. e.*, character of solution, kind of conducting salts, current density, character of cathode, etc., and on this basis I still maintain, as in my letter of August 31st, that the proportioning of anodes insures neutral and high efficiency solutions.

It is possible that the theory of local battery action on anode surfaces is more widespread than I imagined, but that does not prove the theory, nor does the fact that the Humber bicycle was well plated. I do not deny that satisfactory work can be obtained with unclean anodes, I affirm it, because I have seen it done, but I affirm more strongly that better results can be obtained with clean anodes.

Many platers are content because their work is satisfactory, and do not attempt to better it. It is just this quality of self satisfaction that is giving the hustling young platers their opportunity. Suppose that by trying to improve conditions, by maintaining clean baths and anodes, thus increasing the efficiency and decreasing the time of plating, a man can save his employer's money over and above the additional expense incurred, would he not have cause for satisfaction? Old dirty anodes should be well scraped and then scrubbed with a wire brush and plenty of water. The scrapings, which on the first cleaning contain from 50 to 60% nickel in the form of metallic nickel and nickel oxide, should be saved as they can readily be sold or reclaimed as sulphate.

After the first cleaning each plater can remove his anodes one at a time, scrubbing with a stiff wire brush, while his tank is working. Every foreman plater knows that he has not a man in his plating-room who could not find time for this operation, and once they become accustomed to it, it becomes as much a matter of course as the rest of the work. Cleaning anodes once a week (or even once in two weeks) is sufficient and the anodes do not become dirty enough in that time to be difficult to clean. Solutions can be quickly emptied into a convenient tank by means of a foot or air pump, the tank filled with water and emptied, and the solution returned to the tank through felt filters. This would necessitate extra cost but the benefits more than compensate for it.

Frequent filtering is best, but good results can be obtained by filtering not less than once every two months and the cost would by no means reach Mr. Gilchrist's figure of $150 a month. I do not base my statements on theory but on knowledge of known conditions in a plating establishment of considerable size. Mr. Gilchrist inadvertently made a misstatement about the rolled and cast anodes as I plainly stated that rolled and cast anodes should be used together. In nickel ammonia sulphate solutions pure anodes, either cast or rolled, are almost insoluble and for this reason chemistry has developed a method of overcoming the difficulty by adding suitable corroding salts to the electrolyte. By this means slow dissolving anodes can be rapidly corroded, but it is just this property of slow solubility that makes rolled or pure nickel anodes efficient in compensating for the too ready solubility of sand cast anodes in neutral solutions.

With regard to Mr. Gilchrist's tests there is really little comment necessary as they prove absolutely nothing. It is hard to see how anyone expects to determine the anode efficiency by the weight deposited at the cathode, and I think for this reason that a discussion of the tests in their order may be of some value.

*First Test.*—A heavier deposit of nickel was obtained by using dirty anodes than by using the same anodes cleaned or by using new anodes. If the second and third deposits were made on the same piece of copper as the first, it is easy to explain the difference in weight as nickel does not deposit at a definite rate. That is, after the surface of the copper becomes covered with nickel the cathode resistance is changed (increased) and the deposit becomes slower, the longer the time of deposit, the greater the decrease in the amount deposited per minute. Even if a new sheet of copper were used for each test I would discredit the results as due to inaccurate weighing, as the solubility of the anodes in the short time required for the test could have no appreciable effect on the electrolyte and therefore the question becomes one of conductivity. The tests would then indicate that dirty anodes are better conductors than clean anodes. If this were the case, assuming a constant voltage, the amperage (which is not recorded) would be variable. The possible difference between nickel anodes with regard to conductivity is so slight as to be negligible, with the exception that dirty anodes would have much greater contact resistance with the electrolyte and therefore give poorer efficiency. Based on these facts the tests show absolutely nothing.

*Second Test.*—The same general remarks apply to this test as to the first test.

*Third Test.*—I can hardly believe that Mr. Gilchrist is serious about this test, and that he can detect the difference of deposit on steel ribbons in 20 or 30 seconds' time. Why, the difference in even the finest steel ribbon would be sufficient to cause the fractional difference in his thickness of deposit. Unless the micrometer happens to gauge the same place on the steel band before and after plating he will certainly get appreciable differences.

I have examined nickel deposits on similar brass plates, gauging nine places on each plate, marked by a circular ring, before and after plating, and found a difference in the thickness of deposit of from .00010" to .00016" on one plate and from .00018" to .00024" on another. The measurements were made not with an ordinary micrometer, but with the finest type of standard measuring machine where the error in such measurements as these only amount to ±.00001". If Mr. Gilchrist's test is accurate he is indeed to be congratulated as he certainly obtains a heavy deposit in a very short time, and has a useful method of testing the deposit. Does he realize that a nickel deposit .00020" thick on brass would weigh on an average .0169 grs. per square inch, and that his deposit on steel would weigh about .0800 grs. per square inch? A deposit of this weight on steel in 3¾ minutes, even at 5 volts, and with the high amperage obtained in a low resistance solution, such as used for the test, is to my mind very remarkable. The .0169 grs. deposit on brass to which I referred, was obtained in a 5° B. double-nickel solution, voltage, 2.9, amperage per square foot, 1½, time, 1 hour, temperature of solution 70° F., clean solution, clean anodes and clean contacts. I believe these comparisons are of interest as everyone knows how much more rapidly nickel deposits on brass than on iron.

In conclusion I would suggest that in a matter of such universal knowledge as that of nickel anodes, all those who are interested endeavor not only to refute or affirm off-hand the question of cleaning, but to give their arguments based on facts or plausible theories, as by so doing the matter can be thrashed out to the benefit of everyone interested. PERCY S. BROWN.

New York, November 2, 1908.

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To the Editor of THE METAL INDUSTRY.

I am much interested in the articles which have been published recently in THE METAL INDUSTRY on the cleaning of nickel anodes. It has at least been the opinion of a great many platers that a better deposit could be obtained with clean anodes and a clear solution than from a dirty solution with dirty anodes, but those of us who are neutral on the subject are unable to form an intelligent opinion from the fact that they who advocate the uncleaned anodes do not state what line of work they are employed on. Or is it that they believe their theory to be applicable to every line of work? They do not state whether they are able to obtain a bright, clean deposit or whether it buffs up quickly and cleanly. Most any old solution will give a deposit of the desired weight. Would it not be more to the point to state how much of that deposit is left after the buffing process is finished? JAMES HUGHES.

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### WHEELS FOR GENERAL TOOL GRINDING.

To the Editor of THE METAL INDUSTRY:

We have read the article in your September number, page 289, on wheels for general tool grinding.

There is no doubt but that the article was written in the best of faith, but you have made a mistake in recommending a carborundum wheel for general tool grinding. Carborundum is a proprietary article manufactured by only one company in this country. The only purpose for which carborundum wheels show any efficiency is for rough grinding of cast iron, such as snagging castings and stove plate.

For steel of all kinds, and therefore steel tools, corundum wheels will show twice the efficiency and economy of carborundum wheels. Such discriminating grinding experts as Brown & Sharpe Manufacturing Company, Landis Tool Company, Pratt & Whitney Company, and others use corundum wheels practically exclusively in their plants and furnish them with their grinders. Corundum is the hardest and sharpest and most uniform of any abrasive. At any rate, a wheel grade *M*, either corundum or carborundum, would be too soft. For general tool grinding (meaning *machine shop* tools), we would recommend a regular disc wheel, 12 in. diameter, 1½ in. or 2 in. face, No. 46 corundum, grade O. Such a wheel would be free and cool cutting and with the maximum of durability consistent with its free cutting qualities.

In regard to your recommendation of a ring wheel, while these are good for some work, for general tool grinding a disc wheel should be used.

A 12-in. wheel should be run at about 1,600 revolutions per minute, which is equal to 5,000 surface feet per minute, the medium generally employed.

In addition to your recommendations as to operating the wheel, we would add this: Wheels should be mounted on spindles of ample size (for 12-in. wheels we recommend 1-in. arbor) between sufficiently large and heavy flanges so concaved that they bear against the wheel at their outer edges only.

Nearly all wheels are labeled with pads of pulp or blotting paper which form a cushion for the flanges, and in addition to this, it is desirable to use rubber or leather washers a trifle larger than the diameter of the flanges.

Wheels should be kept perfectly true and in balance to obtain the best results.

AMERICAN EMERY WHEEL WORKS.

Providence, R. I.

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To the Editor of THE METAL INDUSTRY:

If we were to criticize your reply to the question on grinding, published in your October number, we should say, that you make no mention whatever of alundum, which we consider the best all-round abrasive now in use. You will note the question specifically refers to the best wheel for general tool grinding. If we were to answer this question we should say a Norton Alundum Wheel from 24 to 36, grade O or P.

NORTON COMPANY.

Worcester, Mass., Oct. 25, 1908.

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### BOOK REVIEW.

Four new books have been published within the last few months which are of particular interest to THE METAL INDUSTRY readers. We herewith mention the commercial particulars of each one and a more lengthy review will appear later.

"Alloys" (Non-Ferrous), by A. Humboldt Sexton. A manual of metal in mixtures, 283 pages, price $2.00. Publishers' Scientific Publishing Company, Manchester, England. For sale by THE METAL INDUSTRY. Special offer to subscribers.

"General Foundry Practice," by Andrew McWilliams and Percy Longmuir. 383 pages with numerous illustrations. Price, $4.50. Publishers, Chas. Griffin & Co., Limited, London, England; J. B. Lippincott Company, Philadelphia, Pa. For sale by THE METAL INDUSTRY. Special offer to subscribers.

"Tin, Lead, Solder," by F. W. Schultz. Solder, its production and application with a brief history of tin and lead. Price, $1.00. For sale by THE METAL INDUSTRY. Special subscription offer.

Third edition "Polishing and Plating of Metals," by Herbert J. Hawkins. With numerous illustrations and formulæ. Price, $2.00. For sale by THE METAL INDUSTRY. Special subscription offer.

# CORRESPONDENCE

IN THIS DEPARTMENT WE WILL ANSWER QUESTIONS RELATING TO THE NON-FERROUS METALS AND ALLOYS. ADDRESS THE METAL INDUSTRY, 61 BEEKMAN STREET, NEW YORK.

## METALLURGICAL.

Q.—We have some phosphor bronze connecting rods which we wish to pickle, and bring them out all one bright color. Will you kindly advise us by return mail just what chemicals and what process is necessary to do this correctly?

A.—Where phosphor-bronze castings are of the same composition and are left in the sand until cool, they are tolerably uniform in color. The variations in color are due to oxidation when castings are taken out hot from the sand. Sand and scale may be removed in a hydrofluoric acid pickle (1 to 4) and then after washing in water the work is dipped in a mixture of 50% strong nitric and 50% strong sulphuric with a small handful of table salt added. Wash in plenty of cold water and dry by dipping in boiling water, followed by sawdust.—J. L. J.

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Q.—What is the matter with sand as per sample? On small flasks up to 15" x 24" it works well making fine smooth surfaced castings. On larger bodies it does not hold together. Is it "dead"? Would adding any other sand help it out?

A.—The sand in question is too fine and full of clay for any work other than very light castings. If a heavy body of metal were to flow over it, it would slob and wash. The sand also effervesces with acids, which may indicate too much lime (if there is no shot metal present). An acid test of the new sand instead of the heap sand, would settle this point. Some of the foundries near New York City have traced trouble had with sand to the water used in wetting it down, being full of lime. While the sand could possibly be "doctored" up to work all right it would be better to use No. 2 Albany or Lumberton for your work.—J. L. J.

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Q.—A customer wants me to cast for him two bronze pumps, one 1½" bore, the other ¾" bore, for 50,000 lbs. pressure per sq. inch (hydraulic). Please let me know (as a subscriber) what would be the best bronze composition to use in making these two pumps. The ¾" is for high pressure.

A.—"Hydraulic metal" will be the best composition for you to use. It consists of:

| | |
|---|---|
| Copper | 100 |
| Tin | 10 |
| Sheet Yellow Brass | 25 |

This is melted and run into ingots. On remelting it gives a very dense, tough metal. It has considerable shrinkage and you must see to it that your castings are well fed and poured with skim gates to keep out all dross and dirt.—J. L. J.

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Q.—We have been experimenting on some castings in aluminum bronze and find considerable trouble in making the metal cast free of oxide or dross although skimmed perfectly clean when we pour. We wish to know if you can advise us of anything which would have the same effect of aluminum bronze that phosphorus has on an ordinary bronze mixture.

A.—If 6 ounces of 10% silicon-copper are added to each 100 pounds of aluminum bronze just before pouring, a clean casting will be obtained. Manganese bronze is preferable to aluminum bronze in almost every respect and has very generally superseded it. It is a much easier alloy to handle in the foundry.—J. L. J.

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Q.—We are having trouble in casting manganese bronze. The formula we use is: Copper 60, zinc 40, manganese copper 3, aluminum 1. This mixture is hard enough, we think a little too hard. It is for automobile trimmings and wants to be mallable and tough so it will bend without breaking.

A.—We invariably advise small users of manganese bronze to buy their ingot from a reliable maker rather than to attempt to make it. You might try reducing the amount of manganese copper and aluminum in your mixture one half. If this is done and Lake copper and Horse-head zinc used, better results ought to be obtained. —J. L. J.

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Q.—We would like to know the formula of "Stone Bronze." If you will let us have this, together with any information you may have in regard to mixing and melting this metal, we will be very much obliged.

A.—The formula for "Stone Bronze" is as follows:

| | |
|---|---|
| Aluminum | ¾ |
| Copper | 58 |
| Iron | 1½ |
| Manganese | ½ |
| Tin | ¼ |
| Zinc | 39 |

We can give you no information about the mixing of this metal except that it is a difficult operation and that you had better obtain the ingot metal from the Exeter Machine Works, Pittston, Pa., who are the American makers and who can also furnish you proper instructions for melting.—J. L. J.

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Q.—Would you kindly advise me what material can be used to reduce the oxide in zinc in the molten state and not show up any analysis afterwards? We are of the opinion that the metals in the molten state contain more or less oxide. We desire to reduce this oxide to the least possible amount. Copper is poled with green hickory to throw off the oxide. We want to get something that will do the same for zinc as green hickory will do for copper.

A.—The best means of keeping oxide of zinc out of molten spelter during the process of manufacture is to have plenty of carbon in the charge and not carry the distillation too far. When much oxide is present in zinc the metal is pasty when melted and produces brittle castings. Zinc containing oxide may be purified by melting, preferably in a clay-lined reverberatory furnace, at a low heat with occasional stirring. The oxide and other mechanically enclosed impurities being lighter than the zinc, may be skimmed off. A 25-ton furnace is a convenient size. Smaller quantities may be refined in iron kettles, but unless unusual care is taken, the temperature of the metal may rise and the zinc will take up iron from the kettle. The addition of 7/100 of 1% of aluminum is said to promote the separation of the impurities.—J. L. J.

Q.—Kindly let me know by return mail a flux to alloy lead and copper.

A.—In order to alloy copper and lead it is not only necessary to get the mixture extremely hot but also besides this to protect it well from oxidation or the lead will separate out. A flux said to be used for this purpose consists of one pound each of lime, charcoal ingots and nitre. This amount is used for each one hundred pounds of a composition containing fifty pounds of copper and fifty pounds of lead. Cyanide of potash is a better flux but expensive.—J. L. J.

## MECHANICAL

Q.—Can you explain in your paper why files vary so in their lasting quality?

A.—The main factors governing file efficiency are three: Quality of the teeth, form of the teeth, and the temper. As long as the present methods prevails of deciding file contracts mainly on the question of prices, so long will the business go to the markers using the cheapest steel, which will harden but once. Let value be substituted for prices as a ruling consideration, and it will at once become possible for makers to employ the high class steels which have revolutionized machine practice within the last few years. The cause of the variation in file lasting quality may also be explained by a detailed examination of the manufacturing process.—E. W.

## GALVANIZING

As I am a subscriber to THE METAL INDUSTRY I am going to ask for a little information if you will kindly grant it. There is a big contract job to be had here galvanizing cast iron hinges and parts for a cold storage plant. At present time all of this work is done by the molten process. Please tell me if this work cannot be galvanized electrically the same as any other job lot on a commercial scale. Please state the difference of cost between the molten, dry and the electrical process.

A.—The work mentioned can probably be galzanized electrolytically but the question of economy over the dip process would depend much on the shape of the castings and the thoroughness with which they must be coated. Castings having deep and narrow pockets cannot be uniformly coated without a great deal of special attention and labor to get the deposit into the recesses. The difficulty is not met with in the dipping process.

Work of such shape as enables ready handling in the plating bath can be electro-zinced for about two-thirds the price of hot galvanizing, but both processes have their limitations, and what might suit some of the work would not be adapted to other portions. If you are not very familiar with these processes you would do well to do some experimenting before investing much money in the contemplated enterprise, and it might be worth while to try out sherardizing (dry galvanizing).—W. C.

## CHEMICAL

Q.—Some time ago you favored us with a little information in regard to finishing a small metal part, which was very satisfactory. We are again soliciting your favor to give us information in regard to the finish on a sample brass piece, which we enclose. This piece, we know, has been spun up from tubing and is finished with a lacquer which is colored with aniline dye. The piece which we wish to match with this finish is made from drawing brass of a heavy gage and our attempts to match have been made with indifferent success. We will thank you if you could give us information in regard to this finish and the cheapest method which we would pursue to get it.

A.—The sample submitted is known as brush brass and lacquered with a heavy lacquer. This gives it its peculiar shade that makes you think that aniline dye is used it its production. To produce the finish proceed as follows: Cut down the surface with Tripoli in the usual manner and then cleanse with benzine or the regular potash bath. Then procure a fine crimped wire scratch brush, 4 or 5 inches in diameter and 4 rows of wire. Run at a speed of 1,200 revolutions per minute. Have a troughful of water to which has been added a little sal soda as a softener. Keep the articles moist and apply a little powdered pumice stone. Go over the articles lightly and evenly and a semi-dead lustre will result. Wash and pass through a dilute cyanide solution to remove any stain and dry out by the aid of boiling water and cloths or maple sawdust. Afterwards lacquer with a good heavy brush lacquer. An excellent lacquer for this purpose consists of French copal varnish cut in denatured alcohol 1 part, a mixture of equal parts of amyl acetate and fusel oil. Of this use 2 parts, 1 part of varnish.—C. P.

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Q.—I am writing to ask if there is any process or solution for a nickel bath that will bring out the work whiter? Also is there any alloy that can be made to be used for anodes that will make a white solution? If you can give me this information by mail I will gladly pay extra as I would like to bid on a large contract.

A.—To maintain a good white nickel solution instead of adding the usual double nickel salts, add occasionally 1 or 2 ozs. of single sulphate of nickel. A small amount of common salt will also assist in maintaining a white deposit. Darkish tones of nickel usually result from a low content of metal in solution. By the constant addition of double salts more ammonium sulphate is retained in the solution than is desirable. By the use of single nickel salts occasionally they combine with the free ammonium sulphate, forming double salts in solution in this manner. The bath will give a white deposit.

Nickel anodes containing a small amount of iron and 1 or 2 per cent. of tin, give a whiter deposit and also reduce more freely.—C. P.

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Q.—After buffing and thoroughly cleaning some pieces of work in steel and some in brass we immersed them in boiling saltpetre and then dipped them immediately in paraffine oil. We obtained the royal copper color all right, but the work was covered with small blisters, which upon breaking showed bright copper instead of the naked metal. Also the salt crystalized on the work when plunged into the oil.

A.—In the production of royal copper by the saltpetre method the articles must be chemically clean and free from oxides before immersion. It is oftentimes advisable to coat them with a slight film of lead by deposition upon the surface. This is accomplished by dissolving 4 ounces caustic soda and ½ ounce litharge in 1 gallon of hot water, using a lead anode. After coppering, polishing and cleaning, a moment's immersion in the lead bath with a weak current will give you a sufficient coating to protect the copper from oxidization before putting in the saltpetre bath, and should prevent the blistering of the surface. If the salts first crystalize upon the articles, plunge them first into boiling water before immersing in the oil; this will dissolve them.—C. P.

Q.—We are using on our brass goods a very good grade of lacquer, paying $3.50 per gallon, but use specially denatured alcohol as a thinner. We find, however, that our brass goods tarnish very quickly and would therefore ask you whether or not the alcohol is the cause of this tarnishing. Kindly reply by return mail.

A.—We are of the opinion that the tarnishing of your brass goods is due to the use of the denatured alcohol which contains benzine and wood alcohol. To overcome your trouble try a mixture of

2 parts of the denatured alcohol;
1 part fusel oil;
1 part amyl acetate.

This mixture slightly increases the cost of your thinner but gives better results.—C. P.

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Q.—Kindly send us the bronze solution used in the manufacture of cash registers. We replate registers, and our solution at times plates red, and what we want is the light gold color. Sometimes we get the right shade and other times we do not. Also the work after it stands for a day or two, will spot out. What can we do for this? We tried cream of tartar one oz. to the gallon, but this did no good. Now we wish you would let us have an answer by mail just as soon as possible as we cannot wait for your issue of THE METAL INDUSTRY.

A.—It is impossible for us to give you the formula for a bronze solution used by a certain manufacturer of cash registers. If you use a brass solution slightly warm without any ammonia and a slight excess of copper in the solution, you will probably come near to the color. The deposit should not come out clear but soft and with a reddish earthy appearance. Give a good deposit, then wash and dry out in the usual manner. Allow the register to stand for a day or two after plating and then while dry immerse rapidly through the regular acid bright dip. Dry out and color on a soft buff; this will give or should give a color exactly like that produced by the concern you mention.—C. P.

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Q.—I read in your paper about imitation silver deposits written by Charles H. Proctor. And it is just what my employers want me to use. It gives the method and the formula, but it does not state if there were anodes used in the bath. If you would kindly let me know, I would be very grateful to you.

A.—Anodes are not necessary in the dip silver solution mentioned in imitation silver deposits. The solution is maintained by the addition of nitrate of silver. This is a dip formula, not an electro deposit.—C. P.

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Q.—The following is a copy of a letter we received a few days ago. Please give us your opinion on the matter. "I want to have a 3" pump electro-plated with copper or zinc. Will need about ⅛ inch of either metal on the inside of pump to enable me to use acid water. Can you do the job and do it soon and what price will you charge? Can the pump be plated evenly, and smoothly and will it stand the friction? Kindly let me hear from you soon and advise me."

A.—You do not state what metal the pump is made from, but we presume iron. A copper deposit will probably give the best result. If the acid water contained chlorine the zinc would be readily attached. It would be best to coat the inside with a fair deposit of cyanide of copper solution and then finish with an acid copper. The outside of the pump could be coated with a drying Japan thinned with benzole to prevent the deposit creeping on the outside. Use a solution of copper containing 1 gal. of water and 1¾ lbs. of sulphate of copper and 4 ozs. of oil of vitriol. For depositing a round anode should be used and if possible a current of air should be forced into the solution that it may be agitated.—C. P.

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Q.—We have just been approached by a party, who has for sale a nickel-plating formula in which the article can be plated without scrubbing or washing in a prepared bath. Kindly advise us if you would recommend anything of this description for nickel plating brass goods, such as oilers, air cocks, etc. Any information you can give us on this subject will be greatly appreciated.

A.—We would advise you not to be led astray by men that have such formulæ for sale. Every little while we hear of such men with formulæ of various kinds. A successful deposit of any nature depends upon an absolute clean metallic surface. The only way you can avoid manual labor in cleansing your goods is to rig up an electrochemical cleaning bath. We can furnish this formula if you wish.—C. P.

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Q.—I wish you would kindly let me know a good nickel strip for brass plated goods. I use 2 parts of sulphuric acid and one part of nitric and a little salt, but it matts the work.

A.—A good nickel strip for brass goods should consist of 4 parts oil of vitriol to 1 part aqua fortis and a little water added to start the strip. Do not add salt. This combining with the vitriol, forms muriatic acid which produces the satin surface. When this formula works too slow, add a little more aqua fortis; when too rough, add more vitriol and occasionally a little water.—C. P.

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Q.—I have some silver chloride that was being washed and was nearly clear of acid, but some ammonia was spilt into it and turned the solution dark brown and when I add this to silver it turns into a muddy color. Kindly tell me by return mail how I can get the silver out of it to make a silver solution.

A.—The accidental addition of ammonia to chloride of silver changed the chloride to an oxide of silver. Wash the ammonia out and dissolve the oxide of silver in cyanide of potassium, this will not injure your bath. Gold solutions are oftentimes prepared by ammoniuret of gold, that is the chloride of gold is precipitated with ammonia and then carefully washed.—C. P.

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Q.—I am in need of a finish called Bower Barff. I wish to apply it to sheet brass plates. Would you please give me the desired information?

A.—The genuine Bower Barff finish can only be produced upon iron by the formation of an oxide of iron produced by heating the surface to a cherry red in a closed retort and injecting live steam at a high temperature. The imitation is produced as follows: Slightly copper plate the articles in a cyanide of copper bath. Then oxidize with a layer of sulphur solution about 1 oz. to the gallon. Then apply a dead black lacquer when dry. This will give the Bower Barff effect. If the articles are first sand blasted even better effects will result.—C. P.

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Q.—I am troubled with my nickel work blistering. I added 5 pounds of boracic acid to a 250-gallon solution and it peeled as bad as ever.

A.—We do not believe in boracic acid as a preventive for blistering or peeling in nickel plating.—C. P.

# Associations and Societies

REPORTS OF THE PROCEEDINGS OF THE METAL TRADES ORGANIZATIONS.

## AMERICAN BRASS FOUNDERS' ASSOCIATION.

American Brass Founders' Association.—President Charles J. Caley, New Britain, Conn.; secretary, W. M. Corse, 54 Lathrop avenue, Detroit, Mich.; treasurer, John H. Sheeler, Philadelphia, Pa. The object of the association is purely educational, and is accomplished by the collection of such information as will be of benefit to the members and to general shop practice, by the presentation of papers on appropriate subjects, and by the publication of such literature.

The executive committee of the association will hold a meeting on November 17, at the new Hotel Astor, in New York City, when the relation of the Supply Association to the American Foundrymen's Association and to the American Brass Founders' Association will be discussed.

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The Foundry and Manufacturers' Supply Association will hold a meeting on November 16, at Cleveland, Ohio, to consider the relations of the Supply Association with the kindred societies, the American Foundrymen's Association and the American Brass Founders' Association.

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## THE INSTITUTE OF METALS.

The Council of the Institute of Metals have accepted the invitation of the Birmingham members to hold the First General Meeting of the Institute in that city. G. A. Boeddicker has kindly consented to act as Chairman of the Local Committee, and County Councillor G. G. Poppleton, J.P., as Honorary Secretary. An interesting programme will be presented.

The meeting will extend over two days, opening session Wednesday, November 11th, when the members will be welcomed in the Hall of the Technical School by the Right Hon. the Lord Mayor of Birmingham. Subsequently, the President, Sir William White, K.C.B., F.R.S., will deliver an address; to be followed by the reading of papers. The session being adjourned at one o'clock, lunch will be served at the Grand Hotel. In the afternoon a visit will be made to the new buildings of the University of Birmingham, where, prior to tea being served, the visitors will be officially received on behalf of the university by Principal Sir Oliver Lodge, D.Sc., LL.D., F. R. S.

In the evening a reception will be held by the Lord Mayor, in the Grosvenor Rooms of the Grand Hotel, which will be followed by a conversazione. The morning of November 12th will be devoted to the reading of papers, and in the afternoon members will have the oportunity of visiting works of metallurgical interest in the neighborhood of Birmingham.

[The Institute of Metals is the newly formed British Society which in Great Britain is furthering the same metallurgical educational work that the American Brass Founders' Association is doing in America.]

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Philadelphia Foundrymen's Association.—On September 2 the 179th regular meeting of this association was held, it being the first after the summer recess. This meeting also marked the removal of the association's headquarters from the old Manufacturers' Club to the club's new quarters at Broad and Walnut streets. The meeting was called to order by President Thomas Devlin, who expressed his appreciation of the large attendance and trusted the meetings in the future would be as well attended. Application for membership was received from J. C. Moyer & Company, of Philadelphia.

Thomas D. West read a paper on "Foundry Accidents and Safety Devices." Mr. West is president of the American Anti-Accident Association and is making a campaign to interest the foundry trade in the subject. A paper was also read by Mr. West on the "Burning of a Broken Propeller Blade." Following the meeting a luncheon was served in the dining room of the club, at which brief addresses were made by H. L. Haldeman, G. C. Davis, Thomas Devlin and J. S. Hibbs.

## NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION.

The seventh annual convention of the National Machine Tool Builders' Association was held at the Hotel Imperial, New York City, October 20, and 21, 1908. The attendance was large. After calling the meeting to order, President Fred L. Eberhardt, of Gould & Eberhardt, Newark, N. J., announced the following committees:

Auditing: A. E. Newton, Prentice Brothers Company, Worcester, Mass., and C. A. Hoefer, Hoefer Mfg. Company, Freeport, Ill.

Resolutions: E. M. Woodward, Woodward-Powell Planer Company, Worcester, Mass., and A. T. Barnes, W. F. & John Barnes Company, Rockford, Ill.

Nominations: F. E. Reed, F. E. Reed Company, Worcester, Mass.; J. B. Doan, American Tool Works Company, Cincinnati, Ohio, and Winthrop Ingersoll, Ingersoll Milling Machine Company, Rockford, Ill.

President Eberhardt and Secretary P. E. Montanus served as the Press Committee.

After the report of the president, which reviewed affairs of the association and suggested the appointment or election of a committee on foreign trade and affairs.

The report of the treasurer, W. P. Davis, showed the organization to be in excellent financial condition and Secretary P. E. Montanus reported that active efforts had been made to increase the membership. Captain Godfrey L. Garden, who has spent six months of this year in looking over machine tool builders of western Europe, then gave an interesting address, citing that Germany at present was the country which most concerned American machine tool builders, and also stated the opportunities for increasing the exports of American machinery in Switzerland, Italy and France.

Following Captain Garden, J. B. Dean spoke on the necessity of manufacturers taking steps at once to establish better foreign relations.

At the second day's session, E. W. Woodward, of Woodward and Powell Planer Company, Worcester, Mass., offered a resolution that the work of Captain Garden be continued in countries not heretofore visited. A motion calling for the appointment of a committee to revise the Constitution and By-Laws was passed and a committee consisting of the following members was appointed.

Walter A. E. Newton, Prentice Brothers Company, Worcester, Mass.; P. E. Montanus, Springfield Machine Tool Company, Springfield, Ohio.

The president appointed a committee of twelve to take up with the Department of Commerce and Labor the question of continuing Captain Garden's work. The committee was as follows:

President, Fred L. Eberhardt, Gould & Eberhardt, Newark, N. J.; Murray Shipley, Lodge & Shipley Machine Tool Company, Cincinnati, Ohio; H. L. Flather, Flather & Co., Inc., Nashua, N. H.; C. H. Alvord, Hendey Machine Company, Torrington, Conn.; W. R. Warner, Warner & Swasey Company, Cleveland, Ohio; F. A. Geier, Cincinnati Milling Machine Company, Cincinnati, Ohio; E. M. Woodward, Woodward & Buell Planer Company, Worcester, Mass.; A. T. Barnes, W. F. & John Barnes Company, Rockford, Ill.; J. B. Doan, American Tool Works Company, Cincinnati, Ohio; P. E. Montanus, Springfield Machine Tool Company, Springfield, Ohio; C. A. Johnson, Gisholt Machine Company, Madison, Wis.; and W. P. Davis, W. P. Davis Machine Company, Rochester, N. Y.

The officers of the association are: President, Fred. L. Eberhardt, Newark, N. J.; first vice-president, C. A. Johnson, Madison, Wis.; second vice-president, E. P. Bullard, Jr., Bridgeport, Conn.; treasurer, W. P. Davis, Rochester, N. Y.; secretary, P. E. Montanus, Springfield, Ohio.

# PERSONALS

ITEMS OF INTEREST TO THE INDIVIDUAL.

## SAMUEL DE VERE BURR.

Samuel De Vere Burr, managing editor of THE METAL INDUSTRY and for twenty-five years connected with the technical press of New York City, died from appendicitis, at his home in Plainfield, N. J., October 28, 1908. Mr. Burr lived only five days from the time he was first taken sick, and no operation could be performed, on account of heart weakness.

S. D. V. Burr was born in New York, January 23, 1855. Later he moved to Plainfield with his parents and entered the then new Stillman High School, being a member of the first graduating class of 1870. He early showed a mechanical and literary bent of mind and continued his education at Rutgers College, New Brunswick, N. J., securing the degree of Civil Engineer from that institution in 1875. He subsequently received the degrees of A.B. and A.M.

One of Mr Burr's first literary ocupations was in assisting his father in compiling a large two volume work on "The Centennial Exposition," entitled "Four Thousand Years of the World's Progress to the Present Time." Later he became connected with *The Engineering News*, and when the proprietor of

S. D. V. BURR.
(Reproduced from a group photograph; only portrait obtainable.)

that journal was away, managed the entire paper. It was at the period of the building of the Brooklyn Bridge, and whenever the paper was short of copy, Mr. Burr would go over to the then bridge wonder, but a few blocks away, and secure enough matter to make interesting reading. His next newspaper connection was with *The Scientific American*, where he was employed six years, and after that for sixteen years from 1888 to 1903 he was Mechanical Editor of *The Iron Age*. The next three years he was a staff correspondent of various trade journals and wrote some special books. Since June 1906 he was connected with THE METAL INDUSTRY, being the managing editor at the time of his death. As an author, Mr. Burr is particularly known for three works: "Bicycle Repairing," "Tunneling Under the Hudson" and "Rapid Transit in New York and Other Large Cities." The last named book was prepared at the request of the New York Chamber of Commerce.

Regarding his ability and character, we herewith quote the opinion of *The Iron Age*, the journal with which he was connected for so many years:

"He was a man of wide attainments and exceptional versatility. He was a skilful pianist and a master of photography. An indefatigable student of science in its varied forms, he possessed to an admirable degree the art of applying his mental riches to practical affairs. He was equally at home in civil and mechanical engineering. His work on *The Iron Age* was chiefly in the line of describing machinery, but the columns of the paper were frequently favored with his contributions on other subjects, as well as editorial discussions. He was a lucid writer, and had a peculiarly vigorous and epigramatic style."

Mr. Burr leaves a widow and married daughter, Mrs. Charles W. Buckelew and a son, Hudson C. Burr, until recently a college student in electrical engineering at Brown University, Providence, R. I.

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James Savage has resigned his position as foundry foreman with the Pittsburg Gage & Supply Company, of Pittsburg, Pa., and has returned to Detroit, Mich.

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I. D. Martin, who was formerly manager of the Waterbury Rolling Mills, Inc., of Waterbury, Conn., is now sales manager of the Waterbury (Conn.) Brass Goods Corporation.

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Jeremiah Howe, formerly superintendent at the Michigan Copper & Brass Company, Detroit, Mich., is now acting as superintendent of the Buffalo Copper & Brass Company, at Buffalo, N. Y.

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J. F. Hubbs, who was formerly connected with The Somerville Company, Limited, of Toronto, Ontario, Canada, has accepted a position with The Niagara Falls (N. Y.) Metal Stamping Company as foreman plater.

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A bronze statue was recently dedicated in the city of Trenton, N. J., to the memory of John A. Roebling, the civil engineer and founder of Trenton's greatest industry, the wire works of John A. Roebling's Sons & Company. The monument was erected by the citizens of Trenton and the sons of Mr. Roebling.

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S. Muscat, who has severed his connection with the Syracuse Smelting Works, is at present living at 887 Manhattan avenue, Brooklyn, N. Y. Mr. Muscat was the founder of the Syracuse Smelting Works twenty-three years ago, and has had charge of their plant at Seattle, Wash. Recently he was connected with the Union Smelting & Refining Works, of New York. At present he is giving his attention to his own affairs, pending a position with some white metal firm.

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H. C. Carpenter has been appointed assistant superintendent of the Seymour Manufacturing Company, of Seymour, Conn., makers of brass and copper sheet and a specialty of German silver. Mr. Carpenter has been in the employ of the company a good many years, having filled various positions as caster, roller and general mill hand. He has also been a traveling salesman for a crucible manufacturer. Mr. Carpenter will be the right hand man of L. T. Wooster, superintendent, who has been connected with the rolling mill for twenty-eight years and who is an expert in the manufacture of German silver.

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Charles M. Dally, 29 Broadway, New York, began his forty-ninth trip across the Atlantic on November 4, on the Lusitania. Mr. Dally is secretary and treasurer of the European Churchward Steel Company, which controls the patents covering the manufacture of vanadium steel, and is also the American representative of the Bates & Peard Patent Annealing Furnace Company, of Liverpool. Some years ago Mr. Dally introduced into Europe the Harvey process of hardening steel that is now used so extensively in the manufacture of armor plate and kindred products. On this trip he will visit Liverpool, London and Paris, returning about December 25.

# PATENTS

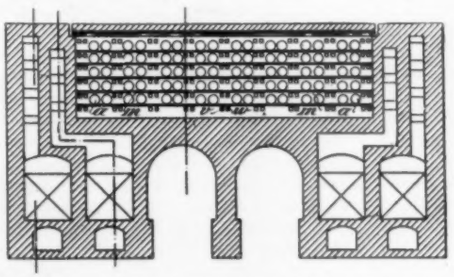
REVIEW OF CURRENT PATENTS OF INTEREST TO THE READERS OF THE METAL INDUSTRY.

900,846. October 13, 1908. Plated Metallic Body. George A. Goodson, Minneapolis, Minn. The claim for this invention is a metallic body, plated with an alloy composed chiefly of lead but containing a small percentage of some hardening metal.

900,117. October 6, 1908. Molding Machine. John F. Nolan, Chicago, Ill. The claim is for a core-molding machine, with the combination of a horizontally vibrating sand plate, a rocking core box adapted to be swung down upon the sand on the plate and means to press the core box into the sand.

897,603. September 1, 1908. Buffing and Grinding Apparatus. F. B. Duncan, assignor to the Northern Electrical Manufacturing Company, of Madison, Wis. This machine is so designed as to properly take care of the dust and dirt necessarily produced when the machine is in operation. The machine is self-contained.

900,845. October 13, 1908. Gas Furnace. L. G. Fromont, Liege, Belgium. This invention relates to an improvement in



the existing types of gas furnaces, which is obtained by having the combustion gases moved horizontally and alternately in opposite directions.

899,357. September 22, 1908. Spoon Holding Sugar Bowl. Wilhelmine Utigard, Thielman, Minn. In this bowl the bowl proper is surrounded with a space for holding and carrying the spoons in an upright position.

899,296. September 22, 1908. Mounting for Precious Stones. William R. Elliott, New York City. This method of mounting is particularly adapted for finger rings, but may also be applied to scarf pins, studs, and the like. The mount will permit of different characters of stones being quickly and conveniently applied to a mount or removed therefrom by the user of the jewel. Provision is made for locking the set stone in place so that it will remain in place until purposely removed.

897,431. September 1, 1908. Alloy for Bearing Metals. Enrique A. Touceda, Albany, N. Y. This alloy is composed of lead and cadmium, the proportions varying according to the uses to which the bearings are to be put. For low pressure work the percentage may be as low as 2.75 of cadmium. For greater load and higher speed 8 per cent. may be used. For extremely heavy service where the load, speed and shock are very severe the cadmium addition must preponderate over the lead.

899,827. September 29, 1908. Process of Making Ingots. Frank Cutter, Providence, R. I. This invention relates to compound ingots adapted to be reduced into seamless plated wire for

jewelers use, and consists of depositing upon a metallic rod by electrolysis a film of another metal and impacting simultaneously all parts of the metal after it is so deposited upon the rod.

900,810. October 13, 1908. Aluminum Solder. T. J. Wibrin and René Wibrin, Chaudefontaine, Belgium. An aluminum solder containing tin 1,000 grams, zinc 750 grams, copper 100 grams.

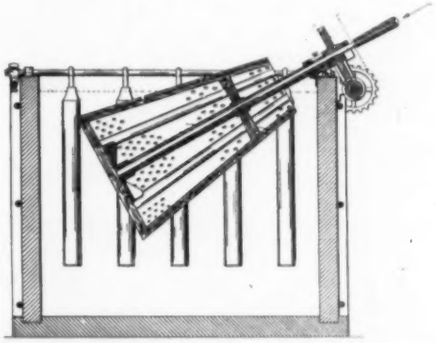
898,638. September 15, 1908. Process of Casting Copper and Copper Alloys. Conrad Gautch, Munich, Germany. According to this invention bicarbonate of soda is added to the copper, which renders it possible to add the desired mixture in much greater quantities, particularly to steel, the alloy as also the pure copper being entirely free from porosity, and metal alloys being obtained (bronzes) which possess exceptional powers of resistance against wear and mechanical influences.

901,014. October 13, 1908. Alloy. William J. Leddell, Summit, N. J. This invention relates to a zinc alloy, consisting substantially of aluminum, zinc and copper in different proportions.

899,226. September 22, 1908. Electroplating Apparatus. George A. Luts, assignor to the American Circular Loom Company, of Portland, Me. The object of this invention is to plate the inside and outside of pipes, tubes and hollow articles. An anode is provided to enter the pipe, with insulation of the anode to prevent its coming in contact with the pipe. There are also one or more anodes placed exterior to the pipe.

899,996. September 29, 1908. Combined Tinning and Cleaning Machine. Job. Lewis, of Lydney, England. Assignor to Richard Thomas & Co., Ltd., of Lanelly, England. The claim for this invention is a machine for tinning and cleaning metal plates, the combination with cleaning devices and a grease pot of a metal coating bath.

901,280. October 13, 1908. Electroplating Apparatus. John T. Daniels, Newark, N. J. Assignor of one-half to the Hanson



& Van Winkle Company, of Newark, N. J. The object of this invention is for increased rapidity, economy and efficiency in plating and polishing small articles in mass.

898,929. September 15, 1908. Pin and Guide for Molding Flasks. Julius Rost, Milwaukee, Wis. The object of this invention is the provisions of a pin and guide for flasks in which the guide is provided with an adjustable pin engaging slide in which the pin is capable of vertical adjustment for lengthening or shortening it to suit the work in the flask. The parts are so designed as to insure the proper registering of the cope with the drag and permit of ready adjustment.

900,169. October 6, 1908. Apparatus for Electroplating Metal Sheets. Henry L. Hollis, Chicago, Ill. An apparatus for electroplating metal sheets, which consists of providing suitable mechanism for conveying the sheets vertically through a bath.

# TRADE NEWS

TRADE NEWS OF INTEREST DESIRED FROM ALL OF OUR READERS. ADDRESS THE METAL INDUSTRY, 61 BEEKMAN STREET, NEW YORK.

The F. W. Long Manufacturing Company, makers of hardware and kitchen supplies at Meriden, Conn., have moved into larger quarters and have put in a plating plant.

The Bridgeport Brass Company, of Bridgeport, Conn., is thinking seriously of building a new mill, to accommodate its growing business. Nothing definite, however, has been decided upon.

One of the busiest shops in Wilwaukee, Wis., is the Stroh Die Moulded Casting Company. The white metal castings turned out by this concern are as smooth and perfect as machined steel.

The Fischer Manufacturing Company, manufacturers of novelties and specialties in brass, wire and other metals formerly located at Paterson, N. J., has removed to 238 South Street, Newark, N. J.

The Bridgeport (Conn.) office of The Dow Chemical Manufacturing Company, with headquarters at Mansfield, O., reports a very brisk business and more difficulty in filling orders than in securing them.

The Virginia Metal Manufacturing Company, of Portsmouth, Va., recently accepted the contract for the complete sheet metal work for the Cape Henry Granite Brick Company's new plant, at Cape Henry, Va.

The Hawley Down Draft Furnace Company, of Chicago, Ill., manufacturers of the "Schwartz" metal melting furnaces, have moved their offices to the sixth floor of The First National Bank Building of that city.

The S. H. Heine Brass Foundry, of Milwaukee, Wis., has recently added some new equipment to its plant. They report having a good run of business in the jobbing line, with excellent prospects for the future.

It is reported that The Bristol Brass Company, of Bristol, Conn., is now working twelve hours a day for four days each week. It is the first time in many months that the rolling mill has been run overtime.

The Waterbury Rolling Mills, Inc., Waterbury, Conn., have been taking out their 16-inch rolls and putting in a set of 20-inches. They report that they have been fairly busy all summer and are now going along nicely.

Henderson Brothers, of Waterbury, Conn., manufacturers of tumbling barrels, have had plans drawn for a three-story brick addition to their present plant, 100x50, and occupying the plot of ground in front of their wooden shop.

The W. S. Cooper Brass Works, Reading, Pa., formerly the Van Meter Foundry, is at present doing an active business, with forty employees. The company reports a brisk trade since January 15. They manufacture plumbers' supplies.

The application of the new British Patent Act has started firms there to advertise for the production of American inventions. In our "Want Ad. Page" of this issue will be found the offer of Wilfred & Co., Ltd., of Birmingham, England.

Thomas Harper, a brass founder formerly located at 400 Broome street, New York, has moved to 139 Lafayette street. Mr. Harper makes a specialty of manganese bronze, phosphor bronze, composition, aluminum, brass and copper castings.

The Century Brass Manufacturing Company, of Cattaraugus, N. Y., closed their plant on October 15 for three weeks, in order that they may install machinery in their new building. Upon resumption the Century Company will employ about one hundred men.

The U. S. Gas Furnace Company, of Providence, R. I., report that they have had all the business they could handle since they moved to 143 Eddy street, in that city, which is in the jewelry district. The company manufacture furnaces for the use of jewelers.

We are informed by the Zucker, Levett & Loeb Company, New York, that since the introduction of their new "Triplex" buff the demand for it has been steadily increasing until now fully fifty per cent. of their total shipments of buffs consist of this new style.

Fred C. Ohlmacher, a manufacturer of hat pins, stick pins, charms, etc., anticipates enlarging his factory, which is located at Lockport, N. Y. Mr. Ohlmacher has made a specialty of metallizing non-metallic objects for many years and reports that his metallized hat pin business is increasing rapidly.

Henry Hollander, a manufacturer of all kinds of metal and wire goods, formerly located at 457 West Broadway, New York, has moved to larger quarters at 109 South Fifth street, Brooklyn, N. Y. Mr. Hollander reports that with his increased facilities he will be in a position to meet the requirements of the trade.

Ernst Knippel, formerly connected with the Delamothe Natural Art Decorating Company, of Spokane, Wash., has organized The Standard Novelty Works, of 244 East Fifty-second street, New York. In addition to a general plating business, Mr. Knippel will make a specialty of metallizing roses and other non-metallic objects.

In order to better take care of its increasing business, the Dings Electro-Magnetic Separator Company, makers of electric separators at Milwaukee, Wis., is erecting a substantial addition to its plant. The new building will be built of concrete and brick, and will be used for offices, drafting room, pattern shop and wood working department.

The Illinois Smelting & Refining Company, Kinzie and Peoria streets, Chicago, Ill., announce that they supply to the trade zinc chloride fused and granulated and which it is stated can be used for aluminum castings. All correspondence for this material should be addressed to the Illinois Smelting & Refining Company's works at East St. Louis, Ill.

The City Brass Company, Pawtucket, R. I., operated by the Frank McKenna Company, reports a decided improvement in business, their foundry now being operated by a full force working full time. The company's trade is almost exclusively in the brass foundry jobbing line, castings in brass, bronze, bell-metal, tin, zinc and aluminum being furnished to order.

The Acheson Manufacturing Company, of Braddock, Pa., has leased one of their buildings, formerly occupied by the National Lead & Oil Company, to the Standard Steel Box Company. The Acheson Company are manufacturers of valves, fittings and brass castings, and at the present time are operating their plant to about 80 per cent. of its capacity and 50 hours a week.

There appeared recently in THE METAL INDUSTRY an article on tilting furnaces. In this connection the Joseph Dixon Crucible Company, of Jersey City, N. J., desire to point out the fact that they are devoting considerable attention to the manufacture of crucibles especially adapted to the different makes of tilting furnaces, and in order to get the best results ask all users to write to the Dixon Company, at their home office, for particulars concerning their special makes.

The Metallic Alloys Company, 30 Church street, New York, has acquired the United States and Canadian patents covering the Alexander E. Outerbridge, Jr., process of using silicon alloys in the ladle. One of the advantages of this process is that the character of the metal can be controlled in each ladle after tapping, the alloy being simply dropped into the ladle before tapping. The principal function of this alloy is that of a softener, strengthener and cleanser of cast-iron.

The W. G. Rowell Company, 353 Water street, Bridgeport, Conn., advise us that they are prepared to execute orders for manganese aluminum, phosphor and Vulcan bronze castings and genuine Vulcan babbitt. They make a specialty of bronze bearings for all kinds of machinery, using a special mixture which, it is claimed, insures long life to the journals and does not heat. In support of these claims they refer to numerous customers who are using their products with satisfactory results.

A. H. Wells & Co., Waterbury, Conn., drawers of seamless tubing, have been adding to their machinery equipment. They recently installed a new milling machine from the Hendey Machine Company, of Torrington, Conn. The Wells Company draw tubing down to the size of 12-1,000 of an inch, and report that they are the only manufacturers in the United States of steam gauge tubes. They have been running four days a week all summer, are now running six, and report a good business.

It is stated that the business of the Pratt & Cady Company, of Hartford, Conn., is growing to such an extent that in a short time it will need more room than it now possesses. In normal times the company does a business of about a million dollars a year, and has a plant on Capitol avenue 700x200 feet. The capital stock of the company is now $400,000, and when its plant is operated to full capacity employs 500 hands. Adolph W. Gilbert is the president and manager, and John Spencer Camp treasurer.

Francis J. Peck & Co., of 731 Williamson Building, Cleveland, Ohio, are calling the attention of the trade to their extremely moderate prices for physical and chemical tests. Their rates for an analysis of metals, including copper, tin, lead, zinc, etc., is $2 each. For alloys, including brass, bronze, babbitt, solders, etc., $2 for each metal. The Peck company announce that they have without doubt the largest and most complete laboratory in the country, and are handling considerable business. They solicit correspondence.

The Manville Brothers Company, 27-33 Benedict street, Waterbury, Conn., have purchased from Frederick E. Cross, of the Cross & Spiers Machine Company, Waterbury, Conn., all of the patterns, drawings, etc., of the different lines of machinery and presses that they have been manufacturing. In the future the Manville Brothers Company will make these lines of work, which includes power presses, foot presses, knurling lathes, spinning lathes, clock lathes, jack machines, etc. Mr. Cross will be a special representative of the Manville Brothers Company.

The stock of the Twentieth Century Brass Works, of Houston, Tex., has been purchased by W. H. Croft, of Chicago, W. F. Short and John C. Harris, of Houston, and will be reincorporated as The Hewitt Manufacturing Company of Texas. It is reported that an extensive building site is being negotiated for, on which will be erected a modern factory of large capacity. Mr. Croft is connected with The Hewitt Manufacturing Company, brass founders, of Chicago, Ill. The new Texas company will make a specialty of brass fittings and railroad journals.

The Electrical Alloy Company is the title of a concern recently incorporated under the laws of the state of New Jersey, with a capital of $50,000, and with an office and factory at Morristown, N. J. The officers of the company are: H. P. Reigart, president; W. H. Kissam, vice-president and general manager; F. S. Reigart, secretary and treasurer. The object of the enterprise is the manufacture of wire from various alloys. The product is chiefly used by manufacturers of electrical apparatus. The company is taking up an existing plant and adapting it to their work.

The Register Company has been formed in Maryland to take over the business of J. Register's Sons Company, of Baltimore, Md., which suffered a loss by fire some months ago. The new company have bought the plant, patterns, machinery and equipment of the old firm and have moved to Westminster, Md., where they are now in complete operation, and will employ 100 men when running to full capacity. E. C. Register, who was general manager and treasurer of the old company, is president and manager of the new corporation. The Register Company manufactures general brass goods.

Our San Francisco (California) correspondent sends us the following news regarding the metal trades of that city: The brass foundry and plating trades are improving and again running full time. The W. S. Ray Manufacturing Company has installed a plating plant at their Bernal works. The California Gas Fixture Company are now located in permanent quarters at 357 Ellis street. The Thomas Day Company is at 725 Mission street, Adams & Hollayseter at 745 Mission street, and the Roberts Manufacturing Company, 857 Mission street. All manufacturers of gas and electric fixtures are running on full time.

G. Harman & Son, Holyoke, Mass., report a noticeable increase in the number of inquiries being received for their core ovens. The Harman oven is made portable, or, where a stationary oven is desired, it is arranged with frame, doors and shelves ready to be built into a brick chamber. The shelves swing outward when the doors are opened. The firebox is placed at the rear, near the bottom of the oven, and arranged so that the heat is evenly distributed. The various parts are substantially made and well-fitted together, and, judging from the reports from various foundries where it has been used, this oven has proved very successful.

The Slade Tubing Company, Incorporated, Pawtucket, R. I., recently secured additional factory space and now has better manufacturing facilities than ever before. Since its establishment, several years ago, this concern has built up an excellent reputation for its products, which consist of seamless brass and copper tubes of one inch outside diameter and smaller. Small sizes, thin gauges and seamless low brass lighting tubes for gasoline lighting systems are a specialty of this mill. In October, F. Slade, the general manager, reported business as being extremely good, it being necessary to run the mill both day and night to keep up with their orders.

The brass foundry of J. B. Chapman & Company, 51 Taylor street, Springfield, Mass., has been established for over fifteen years, and during that period has supplied the Government with many thousands of dollars worth of their products as well as doing a large business with private concerns. They are now issuing a pamphlet calling attention to their facilities for turning out high-grade castings in brass, bronze, gun metal, aluminum and other metals for all purposes. Being equipped with a complete machine shop and a coppersmith department, the company can handle successfully special work that could not be undertaken by an ordinary brass foundry.

THE METAL INDUSTRY has reported several times lately the progress that is being made by the United States Sherardizing Company, of New Castle, Pa., the new company formed to take over the process of sherardizing or dry galvanizing in the United States. The latest business transaction of the company has been the granting of licenses to the following manufacturers: Corbin Screw Corporation, New Britain, Conn.; National Metal Molding Company, Pittsburg; Lunkenheimer Company, Cincinnati, O.; Michigan Bolt & Nut Company, Detroit, Mich.; W. F. Norman Sheet Metal & Manufacturing Company, Nevada, Mo.; Stanley Works, New Britain, Conn.

The Eastern Machinery Company, of New Haven, Conn., have bought the patterns, stock, patents, rights and good will of the former builder of the Hill crusher, and will continue the business. The Hill crusher was one of the first crushing machines put on the market and is well known throughout the brass foundry and smelting trades. The Eastern Machinery Company's main business is the manufacture of the New Haven brick machine, they making eighty per cent. of the brick machinery used in New England. They also make the Frisbie Friction Clutches. They have a well-equipped machine shop and are fully prepared to manufacture the Hill crushers and do all sorts of repair work for this make of crushers.

The Gardiner Metal Company, manufacturers of mixed metals, 454 West Lake street, Chicago, Ill., have recently installed a complete outfit for the manufacture of lead, block tin and composition pipe, wire and triangular solder of all grades, also came, wire and ribbon lead. They also manufacture all grades of printers' metals, such as monotype, stereotype, linotype, type and electrotype, also all grades of Babbitt metals and give particular attention to special mixtures.

James Gardiner, the proprietor, has been in the metal business for over thirty-five years, and has kept abreast of the times in the manufacture of metals. The company is in a position to furnish the best metals at the lowest market prices.

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The Millett Core Oven Company, Springfield, Mass., reports everything in good shape to meet the increasing demand for Millett ovens which is expected to accompany the general revival of trade that has gradually been making itself felt during the past few weeks. Millett core ovens are used in thousands of foundries throughout the world, and the company expects to install many more during the coming year. The Millet Brass Company, also of Springfield, Mass., is being operated at its full capacity; in fact, considerable new equipment has been added to enable the company to fill its orders. A recent visit to this modern plant disclosed a force of nearly fifty employees hard at work, mostly on aluminum castings for various automobile manufacturers.

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Whipple & Choate, metal dealers, Bridgeport, Conn., say that for a number of years they have thought that a No. 1 yellow brass ingot, properly made, would be very acceptable to metal users. They have put out such an ingot and report that they are having exceptional success. The firm are also buyers of yellow brass turnings. The firm of Whipple & Choate are also interested in the Bridgeport Foundry & Machine Company, builders of the Bridgeport Molding Machine, and do a general jobbing business, die work, etc. Besides, they are proprietors of the Bridgeport Deoxidized Bronze & Metal Company, manufacturers of all kinds of metal castings. They are at present just finishing a power plant which is to furnish the power for their machine shop.

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The works of the Westmacott Gas Furnace Company have been affiliated with the Builders' Iron Foundry, Codding street, Providence, R. I. Under the new arrangement manufacturing facilities have been greatly increased and the company intends to push the sale of its products aggressively. A new forty-page catalogue, of neat design, is being issued, which gives a large amount of information regarding the company's complete line of furnaces, many of which are especially designed for the use of manufacturing jewelers, silversmiths, etc. Included in the catalogue are melting furnaces for gold, silver, brass, copper, babbitt metal, etc.; annealing and tempering furnaces, sweep smelting furnaces, muffle furnaces, plating furnaces, and oven and crucible furnaces for use in hardening high-speed tool steel by the chloride of barium process.

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The Worcester Pressed Steel Company have recently installed in their stamping department a new single-acting press, built by the Toledo Machine Tool Company, Toledo, O., and a ten-inch cold rolling mill, built by the United Engineering & Foundry Company, of Pittsburg. To drive these two machines an additional 125 horse-power will be required, which necessitates some extensions to the power plant. A new annealing and case-hardening plant is also nearing completion. It consists of a Swindell patent furnace, furnished by the American Furnace & Manufacturing Company, of Pittsburg, with an annealing oven 6x10x9 feet in size; four Brown & Sharpe annealing furnaces, a four-ton traveling crane, a small cupola and other equipment. To accommodate this equipment a new steel and concrete building, 40x140 feet, has been erected adjoining the main building.

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The Cullen-Atkinson Company, 120 Allyn street, Hartford, Conn., manufacturers of ovens, report a very great improvement in business during October. In one week recently the company did more business than during the whole of the preceding year, and the indications are that the improvement will be sustained. The company makes the Peerless Portable Oven for enameling, revolving core ovens heated by gas or gasoline and rotated by electric motor, as well as special ovens to suit any requirements. They also make the M. Cullen Monitor Gas Mixer and Burner, which is reported to have met with great success. At a recent celebration in Hartford, attending the opening of what is said to be the longest concrete bridge in the world, the Cullen-Atkinson Company had in the industrial and trades procession a large float, consisting of one of their ovens mounted on a truck and suitably decorated. It attracted much favorable attention and comment.

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J. H. Robinson, general manager of the Fairfield Aluminum Company, Fairfield, Conn., recently pointed out to a METAL INDUSTRY representative a number of improvements which his company has found it necessary to make in order to take care of their increasing business. An extension has been built at the rear of the foundry, new furnaces installed, and an addition to the main building is practically completed. The latter will contain, besides a large shipping room, a new air compressing plant, pneumatic chippers, emery wheels and a new Danic Sand Blast, which was recently purchased from Batcheller, Clark & Batcheller, New York. The enlarged plant has a capacity of over a ton a day of high-grade aluminum castings.

This business was established several years ago by Mr. Robinson, and, although he met with many discouragements at first, by persistence and with the co-operation of William C. Buckelew, the president and treasurer of the company, he has brought the enterprise to the point where it has secured ample and substantial recognition from many of the most important buyers of aluminum castings in the country. At present the foundry is working full time on orders for automobile parts from the Locomobile Company, Bridgeport, Conn.; the Corbin company, of New Britain, Conn.; the Thomas company, of Detroit, and other well-known motor car makers.

## FIRES

The Capital City Iron and Metal Company, of 103 East Locust street, Des Moines, Iowa, dealers in metals, recently suffered by fire, and the damages will be from $800 to $900.

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The D. L. Bates & Brother Company, manufacturers of fans and electric machinery at Dayton, O., have suffered a loss by fire. The damage against buildings and private firms was $75,000, partially covered by insurance. The Dayton Electrical Manufacturing Company was probably the heaviest loser from the fire, estimating their loss at $35,000, fully covered by insurance. They will resume business at the earliest possible date.

## FINANCIAL

The Progressive Metal & Refining Company, smelters and refiners, of Milwaukee, Wis., have increased their capital from $10,000 to $25,000 and will manufacture a full line of red and yellow ingot brass and all kinds of white metals. These works are fully up to date and admirably equipped for the accurate production of these mixtures.

## INCORPORATIONS

**In addressing newly formed corporations it is advisable to include the names of the incorporators.**

CHICAGO METAL COILING COMPANY, Chicago, Ill; general metal business. W. S. Lewis, J. Gorham, A. Carroll.

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HEMPSTEAD BRASS COMPANY, from $10,000 to $25,000. Attorneys, Parsons & De Vivier, 32 Liberty street, New York.

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THE AKRON REEL COMPANY, Akron, O.; $10,000. C. C. McCue, W. A. Turpen, John W. Willett, Fred Bohnenbarger and W. E. Young.

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THE INDEPENDENT BRASS COMPANY, Milwaukee, Wis.; capital, $10,000. Incorporators: John A. Williams, Henry W. Beckham and Casimir Dudek.

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THE GRACE BRASS FOUNDRY COMPANY, Camden, N. J.; capital, $10,000. Incorporators: Benjamin F. Buchanan, Frederick D. Hyde and Laura L. Hyde.

ASTORIA METAL WORKING COMPANY, New York; capital, $25,000. Directors: Augustus S. Houghton, Woolsey A. Shepard and Charles B. Young, 111 Broadway, New York.

JAMES N. MOREHOUSE COMPANY, Newark, N. J.; capital, $10,000. Incorporators: James N. Morehouse, Harvey F. Van Sickle and Annabelle Morehouse; to manufacture and plate metal goods.

HAND WROUGHT METAL SHOPS, New York; capital, $5,000. Directors: Lela M. Rosenthal, 175 Claremont avenue; W. Victor Toothaker, 271 West Eleventh street; Adolph J. Rosenthal, 103 Park avenue, New York.

KANAWHA CHEMICAL FIRE ENGINE MANUFACTURING COMPANY, New York; to manufacture chemicals, fire appliances and apparatus; capital, $50,000. Incorporators: F. W. Mills, H. M. Browne, E. J. Fornan, No. 154 Nassau street, New York.

METROPOLITAN BRASS & BRONZE FOUNDRY COMPANY, New York; to manufacture brass and bronze articles; capital, $2,000. Incorporators: Samuel Schwarz, Caroline Schwarz, No 312 East Eighty-fourth street; Bela Memes, No. 306 East Eighty-third street, all of New York.

ELECTRO METALS COMPANY, Bordentown, N. J.; capital, $30,000. Incorporators: Harry H. Sturch, A. S. Dickinson and N. W. Akimoff. The company is to manufacture lead, iron, steel, glass, copper and other metals, wood, etc., and engage as contractors, builders, etc.

THE ROSENBERG-SOLOMON METAL COMPANY, of Brooklyn, N. Y., has filed a certificate of incorporation with the State Department. The capital stock is placed at $2,000, divided into shares of $50 each, and the directors are Samuel Nussbaum, Jacob Bloch, Fisher Rosenberg, Lui Solomon and Rachel Solomon, of Brooklyn.

THE ERIE ART METAL COMPANY, Erie, Pa., has made application for a charter of incorporation. The incorporators are Walter H. Knobloch, A. F. Schabacker, E. F. Gifford, F. G. Diefendorf, M. G. Specht and P. M. Duggan. The company will manufacture hardware and stamped specialties and similar articles out of metal or wood, or both.

THE MERIT METAL COMPANY has filed a certificate of incorporation at Paterson, N. J. This concern will establish a machine manufacturing plant with head offices at 397 Straight street. The company is capitalized at $125,000, divided into 1,250 shares of $100 each. Rudolph Glaaser holds five shares, John J. Canning five and John Crossgebauer ten.

THE DOEHLER DIE-CASTING COMPANY, 369-371 Park avenue, Brooklyn, N. Y., has been incorporated, with H. H. Doehler, president, W. J. Ledell, vice-president, O. A. Schroeder, treasurer, John Kralund, secretary and superintendent, and F. T. Wentworth, assistant secretary and patent attorney. This is a reorganization of the business established by the interested parties some time ago. The new company will continue to make a specialty of furnishing small, accurate die castings for use in cash registers, phonographs, typewriters, telephones, etc. The New York office is at 18 Broadway.

THE CUNNEEN SANITARY MANUFACTURING COMPANY, of Yonkers, N. Y., has filed articles of incorporation. The company has a capital stock of $100,000, and will make and sell sanitary washing machines, brass and sheet metal articles, and so on. The factory of the company is near the Nepperhan Station of the Putnam division, in the city of Yonkers, and is nearly completed. The machinery is at the station, ready to be placed in the building, as soon as the concrete beds are ready.

The officers and directors of the company are as follows: W. R. Oglesby, of Yonkers, president; Peter J. Cunneen, of New Rochelle, vice-president; I. Howard Kinch, of White Plains, secretary; A. P. Hartmann, of Yonkers, treasurer. The directors consist of the officers and John F. Jenkins, of Ossining, N. Y.

## PRINTED MATTER

BRONZE FOUNTAIN. The Hinman Bronze Works, of Plainfield, N. J., issues souvenir postal cards, with a picture of one of their bronze fountains. It makes an attractive picture card.

PRESIDENTIAL FORECAST. A card issued by the Glacier Metal Company, of Richmond, Va., giving the republican, democratic and doubtful States. The forecast was within a few votes of what actually happened.

CORE MACHINES. The advantages of the screw machine over the plunger type of core machine are set forth in a twelve-page pamphlet issued by the Brown Specialty Machinery Company, Jackson Boulevard and Clinton street, Chicago, Ill.

ROLLING MILL MACHINERY. A neat pamphlet is issued by the Farrel Foundry & Machine Company, of Ansonia, Conn., presenting a view of their work and of some of their special machinery. One of their specialties is rolls and rolling machinery for metal works.

GAS AND GASOLINE ENGINES. Donegan & Swift, 6 Murray street, New York City, have issued a large catalogue showing the great variety of gas and gasoline engines which they have in stock for a great variety of power purposes. There are outfits of all sizes and all prices shown in the catalogue.

SEAMLESS TUBING. The exhibit of the National Tube Company, in Mechanical Hall, Pittsburg, Pa., at the Sesqui-Centennial Exposition, 1908, is described in an eight-page illustrated pamphlet, which has just been issued by the company. The pamphlet enbraces welded pipe, seamless tubing, valves and fittings.

THE RISDON TOOL WORKS, INC., 63 Canal street, Waterbury, Conn., publishes a pamphlet, giving the general dimensions of Risdon sub-presses and other information regarding the work that can be accomplished by their use. The company also makes models, light machinery and other tools, and furnishes blanks from dies.

WINDOW VENTILATORS. The Duplex Window Ventilator Company, Portsmouth, Va., has issued Bulletin No. 2 about its window ventilators, which are designed to have "no more stuffy rooms." The ventilators are made in zinc, brass, aluminum and German silver. Full particulars of the ventilators are described in the pamphlet.

LACQUERS. A little pamphlet issued by the New Era Lustre Company, of New Haven, Conn., describes their various grades of lacquers and what can be accomplished by the use of them. The company has also issued a label to manufacturers, stating the care of lacquer for avoiding fire, according to the new regulations of the railroads and underwriters.

FRICTION BLOCK FOR WIRE DRAWING FRAMES.. An instructive pamphlet called Bulletin No. 117, being a part of the loose-leaf catalogue of the Morgan Construction Company, of Worcester, Mass., has just been issued. It relates to the Carroll friction block for wire drawing frames. The catalogue is nicely illustrated and carefully prepared and contains information of value to users of this class of machinery.

CLUTCH PULLEYS. The Eastern Machinery Company, of New Haven, Conn., have issued a catalogue and price list No. 6 of "Improved Frisbie Friction Clutch Pulleys." The catalogue contains a complete description of the pulley and has a number of tables giving the size of the pulley, the price and size of the shafting, space required on the shafting and the horse-power, all of which particulars are of value to users of power. The catalogue is a book of 74 pages.

RIVETERS. Catalogue No. 3—third edition—just issued by the Hanna Engineering Works, of Chicago, Ill., is a finely illustrated and printed booklet of sixty-eight pages—the cover is printed in two colors. The contents relate to the Hanna type riveters and

the hydro-pneumatic type riveters, also plain toggle and yoke riveters and Hanna screen shakers. Besides descriptive matter, there is tabular matter and letters from users of Hanna machinery.

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GENERAL CATALOGUE No. 40. This catalogue contains a number of additions and corrections of the S. Obermayer Company's catalogue of its products. There are 369 pages, and much interesting information for foundrymen. This new edition has just been issued from the company's offices at Cincinnati, Ohio, and they are glad to send a copy to any reader of THE METAL INDUSTRY who mentions this paper. The S. Obermayer Company is also issuing attractive souvenir postal cards, showing a nice view of their works.

## ADNOTES

The Paige Retort and Crucible Company, of Taunton, Mass., announce that "with a new President, the founder wants a brand new crucible for his business success in 1909," and that Paige's pots will help the founder succeed.

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The Pittsburgh Smelting and Refining Company, P. O. Box 203, Greenburg, Pa., are dealers in brass foundry tailings, emery grindings, magnetic separator tailings, copper scale, brass skimmings, zinc oxide, sal amoniac skimmings, etc. They solicit samples of what manufacturers have to sell.

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The A Garrison Foundry Company, S. Muriel street, Pittsburgh, Pa., announce a different lot of machine tools in their advertisement this month. It includes blanking, drawing, shearing presses, cornice brakes, shears, rolling mill machinery. They make a speciality of chilled rolls turned, ground and polished.

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The American Tripoli Company, of Seneca, Mo., for twenty years grinders of Missouri tripoli flour, announce that this Missouri tripoli is the most effective fine abrasive known. Their air-dust grade is an impalpable powder and yet a very fine abrasive. Their tripoli flour is used by all manufacturers of buffing compositions, metal polishes, polishing rouges, etc.

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The Cleveland Platers' Supply Company, 113 St. Clair avenue, N. E., Cleveland, Ohio, announce that among their customers for their electric cleaning compound are the largest manufacturers of stoves, plumbers brass goods, builders' hardware, silver plated ware, brass novelties and hardware specialties. They issue a booklet entitled, "Cleaning by Electricity," which is mailed free to any address.

## DAILY METAL PRICES

We have made arrangements with the New York Metal Exchange by which we can furnish our readers with the Official Daily Metal Market Reports of the Exchange and a year's subscription to THE METAL INDUSTRY for the sum of $10. The price of the Report alone is $10. Sample copies furnished for the asking. We can also furnish daily telegraphic reports of metal prices.

## METAL MARKET REVIEW

New York, November 6, 1908.

COPPER.—The market for Standard Copper in London has been strong, with a steady advance during the entire month, and prices at the close are about £2 per ton higher and the prediction is made that copper in London will go to £70.

In the home market the steadier tone alluded to in our last report has gradually developed into a strong and active market, with prices at the close of the month fully ½ cent per pound higher, and the indications are that copper may easily be put to 15 cents if the buying movement that is now in progress keeps up. With business conditions settled for the next four years, consumers seem ready to go ahead and contract for their supplies for the next three months.

The exports for the month of November were 21,749 tons, against 29,161 tons during the same period last year. The total exports for the ten months of 1908 amount to 248,807 tons, against 157,064 tons for the same period in 1907.

The market closes strong, with good buying. Lake, 14⅜ to 14½; Electrolytic, 14¼ to 14⅜; Casting brands, 14¼.

TIN.—The London tin market has been very active, with prices at the close of the month about £2 per ton higher. The trading has been heavy, and the general impression is that prices may go still higher.

In the New York market there has been more activity, the Steel Trust came into the market, bought 300 tons and advanced prices about ⅛ cent per pound. The statistics for the month show a reduction of about 500 tons in the total visible supply; the consumption for America is estimated as 3,000 tons, against 2,300 a month ago. The market at the close is firm, 5 to 10-ton lots spot 30⅜ cents, November and December delivery about 5 points higher.

LEAD.—The London market is about the same as a month ago, closing at £13 8s. 9d.

The New York market ruled dull and weak for the first half of the month, and the lead trust twice reduced their price from 4½ New York in the early part of the month to 4.30. The open market lately has ruled stronger and prices are about 15 points above the lowest and about 10 points lower than the first of the month. Carload lots, New York delivery, 4⅜ to 4.40; smaller lots from store, 15 to 20 points higher.

SPELTER.—The London Spelter market has advanced about £2 per ton during the month.

The New York market has ruled fairly steady, with good buying at the close, and prices are about 10 points higher than a month ago. Carload lots, New York delivery, 4.95 to 5 cents.

ANTIMONY.—The London market has advanced about £1 per ton.

The New York market has been rather more active and prices have advanced about ¼ cent per pound all round. Cookson's, 8¼; Hallett's, 8 cents; Hungarian grades, about 7½ cents.

ALUMINUM.—The market for Aluminum has been rather irregular, owing to the foreign importations. No. 1 ingots in ton lots, 25 cents; rods and wire base, price, 33 cents; sheets base, 35 cents.

PLATINUM.—The market for Platinum has been very irregular. The leading importers are asking at the close $23.50 for ordinary to $26.00 for hard, which outside interests are quoting $19.50 to $20.50. Scrap is worth about $18.00 per oz.

SILVER.—The London Silver market has been dull and easier, with prices at the close about ½d. per ounce lower, closing at 23 1/16d.

In New York prices touched the lowest point in years. Opening at 51⅝ cents, prices declined to 50 cents and closed at 50⅜.

QUICKSILVER.—The London price is the same as a month ago, and the New York price is unchanged. Wholesale lots, $46.00 per flask, and smaller lots $47.00 per flask.

SHEET METALS.—There has been no change in Sheet Copper, Copper Wire or Sheet Brass, but an advance may be looked for at any moment on account of the advancing Copper market.

OLD METALS.—The Old Metal market has been active and prices on all kinds of Copper and Brass scrap are higher in sympathy with the advance in Copper. In the white metals lead, tin and spelter, the market is firmer and dealers are looking for a good demand, with better prices prevailing.

## THE OCTOBER MOVEMENTS IN METALS

| | Highest. | Lowest. | Average. |
|---|---|---|---|
| COPPER— | | | |
| Lake | 14.00 | 13.50 | 13.70 |
| Electrolytic | 13.75 | 13.35 | 13.60 |
| Casting | 13.50 | 13.25 | 13.35 |
| TIN | 30.15 | 29.10 | 29.50 |
| LEAD | 4.50 | 4.25 | 4.40 |
| SPELTER | 4.75 | 4.60 | 4.70 |
| ANTIMONY (Halletts | 8.00 | 7.90 | 7.95 |

**Trade Wants on Advertising Page 23 Following**

# Metal Prices, November 9, 1908

## NEW METALS.

| | Price per lb. Cents |
|---|---|
| COPPER—PIG, BAR AND INGOT AND OLD COPPER. Duty Free. Manufactured 2½c. per lb. | |
| Lake, car load lots | 14.30 |
| Electrolytic, car load lots | 14.25 |
| Castings, car load lots | 14.00 |
| TIN—Duty Free. | |
| Straits of Malacca, car load lots | 30.25 |
| LEAD—Duty Pigs, Bars and Old, 2⅛c. per lb.; pipe and sheets, 2½c. per lb. | |
| Pig lead, car load lots | 4.40 |
| SPELTER—Duty 1½c. per lb. | |
| Western, car load lots | 4.85 |
| ALUMINUM—Duty Crude, 8c. per lb. Plates, sheets, bars and rods, 13c. per lb. | |
| Small lots | 29.00 |
| 100 lb. lots | 26.00 |
| Ton lots | 25.00 |
| ANTIMONY—Duty ¾c. per lb. | |
| Cookson's cask lots, nominal | 8.25 |
| Hallett's, cask lots | 8.00 |
| Other cask lots | 7.50 |
| NICKEL—Duty, 6c. per lb. | |
| Shot, Plaquettes, Ingots, Blocks, according to quantity | .45 to .60 |
| MANGANESE—Duty 20% | .80 |
| MAGNESIUM—Duty free | 1.30 |
| BISMUTH—Duty free | 1.80 |
| CADMIUM—Duty free | 1.00 |
| | Price per oz. |
| GOLD—Duty free | $20.67 |
| SILVER—Duty free | .50⅛ |
| PLATINUM—Duty free | 21.00 |
| QUICKSILVER—Duty 7c. per lb. Price per pound | 65c. to 66c. |

## OLD METALS.

| | Price per lb. Cents. | |
|---|---|---|
| Heavy Cut Copper | 11.50 | 12.00 |
| Copper Wire | 11.00 | 11.75 |
| Light Copper | 10.00 | 10.50 |
| Heavy Mach. Comp. | 10.50 | 11.00 |
| Heavy Brass | 8.00 | 9.00 |
| Light Brass | 6.00 | 6.50 |
| No. 1 Yellow Brass Turnings | 7.50 | 8.00 |
| No. 1 Comp. Turnings | 8.50 | 9.00 |
| Heavy Lead | 4.00 | 4.20 |
| Zinc Scrap | 3.00 | 3.50 |
| Scrap Aluminum, turnings | 6.50 | 7.00 |
| Scrap Aluminum, cast, alloyed | 15.00 | 18.00 |
| Scrap Aluminum, sheet (new) | 18.00 | 21.00 |
| Old Nickel, solid | 19.00 | 23.00 |
| No. 1 Pewter | 18.00 | 19.00 |

## INGOT METALS.

| | Price per lb. Cents. | |
|---|---|---|
| Silicon Copper ..... according to quantity | 28 | to 30 |
| Phosphor Copper, 5% ..... " " | 19 | to 21 |
| Phosphor Copper, 10% to 15% Guaranteed ..... " " | 28 | to 30 |
| Phosphor Tin ..... " " | 34 | to 36 |
| Brass Ingot, Yellow ..... " " | 10 | to 11 |
| Brass Ingot, Red ..... " " | 12 | to 14 |
| Bronze Ingot ..... " " | 11 | to 13 |
| Manganese Bronze ..... " " | 14 | to 17 |
| Phosphor Bronze ..... " " | 13 | to 16 |
| Casting Aluminum Alloys ..... " " | 29 | to 35 |

PHOSPHORUS—Duty 18c. per lb.
According to quantity ..... 32 to 40

## PRICES OF HOT ROLLED SHEET COPPER.

| SIZES OF SHEETS. | | 64 oz. and over 50 lb. sheet 30 x 60 and heavier. | 32 oz. to 64 oz. 25 to 50 lbs. sheet 30 x 60. | 24 oz. to 32 oz. 18¾ to 25 lb. sheet 30 x 60. | 16 oz. to 24 oz. 12½ to 18¾ lb. sheet 30 x 60. | 14 oz. and 15 oz. 11 to 12½ lb. sheet 30 x 60. | 12 oz. and 13 oz. 9½ to 11 lb. sheet 30 x 60. | 10 oz. and 11 oz. 7⅝ to 9½ lb. sheet 30 x 60. | 8 oz. and 9 oz. 6¼ to 7⅝ lb. sheet 30 x 60. | Lighter than 8 oz. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CENTS PER POUND. | | | | | | | | |
| Not wider than 30 ins. | Not longer than 72 inches. | 18 | 18 | 18 | 18 | 19 | 20 | 21 | 24 | 27 |
| | Longer than 72 inches. Not longer than 96 inches. | 18 | 18 | 18 | 18 | 19 | 21 | 24 | 27 | |
| | Longer than 96 inches. | 18 | 18 | 18 | 18 | 20 | 24 | | | |
| Wider than 30 ins. but not wider than 36 inches. | Not longer than 72 inches. | 18 | 18 | 18 | 18 | 20 | 22 | 25 | 28 | |
| | Longer than 72 inches. Not longer than 96 inches. | 18 | 18 | 18 | 18 | 20 | 24 | 27 | | |
| | Longer than 96 inches. Not longer than 120 inches. | 18 | 18 | 18 | 19 | 21 | | | | |
| | Longer than 120 inches. | 18 | 18 | 19 | 20 | | | | | |
| Wider than 36 ins. but not wider than 48 inches. | Not longer than 72 inches. | 18 | 18 | 19 | 20 | 22 | 25 | 28 | | |
| | Longer than 72 inches. Not longer than 96 inches. | 18 | 18 | 19 | 21 | 23 | 26 | | | |
| | Longer than 96 inches. Not longer than 120 inches. | 18 | 18 | 20 | 22 | 26 | | | | |
| | Longer than 120 inches. | 18 | 19 | 21 | 24 | | | | | |
| Wider than 48 ins. but not wider than 60 inches. | Not longer than 72 inches. | 18 | 18 | 19 | 21 | 24 | 29 | | | |
| | Longer than 72 inches. Not longer than 96 inches. | 18 | 18 | 20 | 22 | 27 | | | | |
| | Longer than 96 inches. Not longer than 120 inches. | 18 | 19 | 21 | 24 | | | | | |
| | Longer than 120 inches. | 19 | 20 | 22 | 26 | | | | | |
| Wider than 60 ins. but not wider than 72 ins. | Not longer than 72 inches. | 18 | 19 | 21 | 26 | | | | | |
| | Longer than 96 inches. Not longer than 120 inches. | 18 | 20 | 23 | 28 | | | | | |
| | Longer than 120 inches. | 19 | 21 | 26 | | | | | | |
| Wider than 72 ins. but not wider than 108 ins. | Not longer than 72 inches. | 19 | 21 | 24 | | | | | | |
| | Longer than 96 inches. Not longer than 120 inches. | 20 | 22 | 25 | | | | | | |
| | Longer than 120 inches. | 21 | 23 | 27 | | | | | | |
| Wider than 108 ins. | Not longer than 72 inches. | 22 | 24 | | | | | | | |
| | Longer than 132 inches | 23 | 26 | | | | | | | |

Rolled Round Copper, ⅝ inch diameter or over 18 cents per pound. (Cold Drawn, Square and Special Shapes, extra.)

Circles, Segments and Pattern Sheets three (3) cents per pound advance over prices of Sheet Copper required to cut them from.

All Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, one (1) cent per pound over the foregoing prices.

All Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, two (2) cents per pound over the foregoing prices.

Cold Rolled and Annealed Copper, Sheets and Circles, take the same price as Cold or Hard Rolled Copper of corresponding dimensions and thickness.

All Polished Copper, 20 inches wide and under, one (1) cent per pound advance over the price for Cold Rolled Copper.

All Polished Copper over 20 inches wide, two (2) cents per pound advance over the price for Cold Rolled Copper.

Planished Copper one (1) cent per pound more than Polished Copper.

Cold Rolled Copper prepared suitable for polishing, same prices and extras as Polished Copper.

Tinning Sheets, on one side, 3½c. per square foot.

For tinning both sides, double the above price.

For tinning the edge of sheets, one or both sides, price shall be the same as for tinning all of one side of the specified sheet.

## COPPER BOTTOMS, PITS AND FLATS.

| | |
|---|---|
| 14 oz. to square foot and heavier, per lb. | 22c. |
| 12 oz. and up to 14 oz. to square foot, per lb. | 23c. |
| 10 oz. and up to 12 oz. | 25c. |
| Lighter than 10 oz. | 28c. |

Circles less than 8 in. dia., 2c. per lb. additional.

Circles over 13 in. dia. are not classed as Copper Bottoms.

Polished Copper Bottoms and Flats, 1c. less per lb. extra.

ZINC—Duty, sheet, 2c. per lb. Price per lb.
Mill price, carload lots ..... 7.00 less 8%
Open casks ..... 8.50

# Metal Prices, November 9, 1908

## PRICES ON BRASS MATERIAL—MILL SHIPMENTS.

**In effect Aug. 10, 1908, and until further notice.**

To customers who purchase less than 40,000 lbs. per year and over 5,000 lbs. per year.

| | Net base per lb. High Brass. | Low Brass. | Bronze. |
|---|---|---|---|
| Sheet | $0.14¼ | $0.16½ | $0.18½ |
| Wire | .14½ | .16¾ | .18¾ |
| Rod | .14½ | .16¾ | .19¼ |
| Brazed tubing | .20¾ | —— | .23½ |
| Open seam tubing | .18¾ | —— | .21½ |
| Angles and channels, plain | .20¾ | —— | .24⅛ |

**30% discount from all extras as shown in American Brass Manufacturers' Price List No. 7.**

**NET EXTRAS FOR QUALITY.**

| | | | | | |
|---|---|---|---|---|---|
| Sheet—Extra spring, drawing and spinning brass.. | ¾c. | per | lb. | net | advance |
| " —Best spring, drawing and spinning brass.... | 1½c. | " | " | " | " |
| Wire—Extra spring and brazing wire..... | ¾c. | " | " | " | " |
| " —Best spring and brazing wire..... | 1c. | " | " | " | " |

**To customers who purchase less than 5,000 lbs. per year.**

| | Net base per lb. High Brass. | Low Brass. | Bronze. |
|---|---|---|---|
| Sheet | $0.15¼ | $0.17½ | $0.19½ |
| Wire | .15½ | .17¾ | .19¾ |
| Rod | .15½ | .17¾ | .20¼ |
| Brazed tubing | .21¾ | —— | .24½ |
| Open seam tubing | .19¾ | —— | .22½ |
| Angles and channels, plain | .21¾ | —— | .25¾ |

**5% discount from all extras as shown in American Brass Manufacturers' Price List No. 7.**

**NET EXTRAS FOR QUALITY.**

| | | | | | |
|---|---|---|---|---|---|
| Sheet—Extra spring drawing and spinning brass.. | ¾c. | per | lb. | net | advance |
| " —Best spring, drawing and spinning brass.... | 1½c. | " | " | " | " |
| Wire—Extra spring and brazing wire..... | ¾c. | " | " | " | " |
| " —Best spring and brazing wire..... | 1c. | " | " | " | " |

## BARE COPPER WIRE—CARLOAD LOTS.

15¾c. per lb. base.

## SOLDERING COPPERS.

| | | | |
|---|---|---|---|
| 300 lbs. and over in one order | 18½c. | per | lb. base. |
| 100 lbs. to 300 lbs. in one order | 19c. | " | " |
| Less than 100 lbs. in one order | 20½c. | " | " |

## PRICES FOR SEAMLESS BRASS TUBING.

From 1¼ to 3½ in. O. D. Nos. 4 to 13 Stubs' Gauge, 18c. per lb.
Seamless Copper Tubing, 21c. per lb.

**For other sizes see Manufacturers' List.**

## PRICES FOR SEAMLESS BRASS TUBING Iron Pipe Sizes.

| Iron Pipe Size | ⅛ | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price per lb. | 26 | 25 | 20 | 19 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 19 | 20 | 22 | 24 | 25 |

## PRICE LIST OF IRON LINED TUBING—NOT POLISHED.

| | Per 100 feet Brass. | Bronze. |
|---|---|---|
| ⅝ inch | $8 | $9 |
| ½ inch | 8 | 9 |
| ⅝ inch | 10 | 11 |
| ¾ inch | 12 | 13 |
| ⅞ inch | 14 | 15 |
| 1 inch | 18 | 20 |
| 1⅛ inch | 22 | 24 |
| 1¼ inch | 25 | 27 |
| 1½ inch | 32 | 35 |
| 1¾ inch | 45 | 48 |
| 2 inch | 56 | 60 |

Discount 45 and 5%.

## PRICES FOR MUNTZ METAL AND TOBIN BRONZE.

| | | | | |
|---|---|---|---|---|
| Muntz or Yellow Metal Sheathing (14" x 48") | 15c. | lb. | net | base |
| " " " Rectangular Sheets other than Sheathing | 17c. | " | " | " |
| " " " Rod | 16c. | " | " | " |
| Tobin Bronze Rod | 17c. | " | " | " |

Above are for 100 lbs. or more in one order.

## PLATERS' METALS.

Platers' bars in the rough, 23½c. net.

German silver platers' bars dependent on the percentage of nickel, quantity and general character of the order.

Platers' metal, so called, is very thin metal not made by the larger mills and for which prices are quoted on application to the manufacturers.

## PRICES FOR SHEET BLOCK TIN AND BRITANNIA METAL.

Not over 18 in. in width, not thinner than 23 B. S. Gauge, 4c. above price of pig tin in same quantity.

Not over 35 in. in width, not thinner than 22 B. S. Gauge, 5c. above price of pig tin.

## PRICE LIST FOR SHEET ALUMINUM—B. & S. Gauge.

| Wider than..... and including..... | 8in. 12in. | 6in. 14in. | 14in. 16in. | 16in. 18in. | 18in. 20in. | 20in. 24in. | 24in. 30in. | 30in. 36in. | 36in. 40in. |
|---|---|---|---|---|---|---|---|---|---|
| | in coils. | | | | | | | | |
| No. 13 and heavier | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 14 | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 15 | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 16 | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 17 | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 18 | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 19 | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 42 | 45 |
| " 20 | 36 | 38 | 38 | 38 | 38 | 40 | 43 | 44 | 46 |
| " 21 | 36 | 40 | 40 | 40 | 40 | 42 | 45 | 46 | 52 |
| " 22 | 36 | 40 | 40 | 40 | 42 | 42 | 45 | 49 | 53 |
| " 23 | 36 | 40 | 40 | 40 | 42 | 42 | 45 | 51 | 54 |
| " 24 | 36 | 40 | 42 | 44 | 44 | 44 | 47 | 53 | 56 |
| " 25 | 38 | 41 | 43 | 45 | 45 | 45 | 48 | 55 | 59 |
| " 26 | 38 | 41 | 44 | 48 | 48 | 48 | 53 | 57 | 63 |
| " 27 | 38 | 42 | 46 | 50 | 50 | 51 | 56 | 60 | 66 |
| " 28 | 38 | 42 | 48 | 50 | 51 | 51 | 58 | 64 | 69 |
| " 29 | 40 | 43 | 50 | 52 | 54 | 54 | 63 | 69 | 74 |
| " 30 | 40 | 44 | 52 | 54 | 58 | 64 | 72 | 74 | 79 |
| " 31 | 45 | 49 | 57 | 60 | 65 | 73 | 76 | 79 | 85 |
| " 32 | 47 | 51 | 59 | 63 | 71 | 79 | 86 | 92 | 97 |
| " 33 | 49 | 53 | 62 | 67 | 75 | 86 | 93 | 102 | 112 |
| " 34 | 52 | 57 | 64 | 72 | 80 | 93 | 105 | 112 | 122 |
| " 35 | .. | 67 | 72 | 82 | 92 | 102 | 117 | 127 | .. |
| " 36 | .. | 82 | 92 | 102 | 117 | 122 | 137 | .. | .. |
| " 37 | .. | 106 | 110 | 131 | 146 | 161 | 176 | .. | .. |
| " 38 | .. | 126 | 141 | 156 | 171 | 186 | 206 | .. | .. |
| " 39 | .. | 146 | 166 | 186 | 206 | 226 | .. | .. | .. |
| " 40 | .. | 176 | 206 | 226 | 246 | .. | .. | .. | .. |

In flat rolled sheets the above prices refer to lengths between 2 and 8 feet. Prices furnished by the manufacturers for wider and narrower sheet. All columns except the first refer to flat rolled sheet. Prices are 50 lbs. or more at one time. Less quantities 5c. lb. extra. Charges made for boxing.

## PRICE LIST OF SEAMLESS ALUMINUM TUBING.

| Stubs' G. B. & S. G. | 1¼" | 1½" | 1¾" | 2" | 2¼" | 2½" | 2¾" | 3" | 3¼" | 3½" | 3¾" | 4" | 4¼" | 4½" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 to 11 | 3 to 9 | BASE PRICE 45 CENTS. | | | | | | | | | | 3 | 3 | 3 | 10 |
| 12 | 10 | | | | | | | | | | | 6 | 6 | 6 | 13 |
| 13 | 11 | | | | | | | | | | | 10 | 10 | 10 | 16 |
| 14 | 12 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 13 | 13 | 13 | 19 |
| 15 | 13 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 19 | 19 | 19 | 22 |
| 16 | 14 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 19 | 22 | 25 | 35 |
| 17 | 15 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 16 | 19 | 22 | 25 | 29 | 38 |
| 18 | 16 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 19 | 22 | 25 | 29 | 32 | 32 | 44 |
| 19 | 17 | 16 | 16 | 16 | 16 | 16 | 16 | 22 | 25 | 29 | 32 | 35 | 41 | 48 | 54 |
| 20 | 18-19 | 19 | 19 | 19 | 19 | 19 | 22 | 22 | 25 | 29 | 35 | 35 | 41 | 60 | 60 |
| 21 | 20 | 22 | 22 | 22 | 22 | 22 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 22 | 21 | 25 | 25 | 25 | 25 | 25 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 23 | 22 | 35 | 35 | 35 | 41 | 48 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 24 | 23 | 57 | 60 | 60 | 63 | 67 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 25 | 24 | 73 | 76 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

Prices are for ten pounds or more at a time. For prices on smaller sizes send for manufacturers' list.

## PRICE LIST FOR ALUMINUM ROD AND WIRE.

| Diameter. B. & S. G'ge. | 000 to No. 10. | No. 11. | No. 12. | No. 13. | No. 14. | No. 15. | No. 16. | No. 17. | No. 18. | No. 19. | No. 20. | No. 21. | No. 22. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price, per lb. ... | 34 | 34½ | 34½ | 35 | 35½ | 36 | 36½ | 37 | 38 | 39 | 40 | 43 | 48 |

200 lbs. to 30,000 lbs., 3 cents off list; 30,000 lbs. and over, 4 cents off list.

## PRICE LIST FOR GERMAN SILVER IN SHEETS AND ROLLS.

| Per cent. | Price per lb. | Per cent. | Price per lb. |
|---|---|---|---|
| 12 | $0.52 | 16 | $0.58 |
| 13 | .53 | 17 | .59 |
| 14 | .54 | 18 | .60 |
| 15 | .55 | | |

These prices are for sheets and rolls over 2 inches in width, to and including 8 inches in width and to No. 20, inclusive, American or Brown & Sharpe's Gauge. Prices are for 100 lbs. or more of one size and gauge in one order. Discount 50%.

## GERMAN SILVER TUBING.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | per cent. | to No. | 19, | B. & S. | Gauge, | inclusive | $0.60 |
| 6 | " | " | 19, | " | " | " | .70 |
| 9 | " | " | 19, | " | " | " | .85 |
| 12 | " | " | 19, | " | " | " | 1.00 |
| 15 | " | " | 19, | " | " | " | 1.15 |
| 16 | " | " | 19, | " | " | " | 1.20 |
| 18 | " | " | 19, | " | " | " | 1.30 |

German Silver Tubing thinner than No. 19 B. & S. Gauge add same advances as for Brazed Brass Tube.

For cutting to special lengths add same advances as for Brazed Brass Tube. Discount 40%.

## PRICE OF SHEET SILVER.

Rolled sterling silver .925 fine is sold according to gauge quality and market conditions. No fixed quotations can be given as prices range from 2c. below to 6c. above the price of bullion.

Rolled silver anodes .999 fine are quoted at 2c. above the price of bullion for large buyers.

# TRADE WANTS

**AN EXCHANGE FOR THE WANTS OF THE METAL TRADES.**

**Advertisements will be inserted under this head at 40 cents per line, 3 lines one dollar, for each insertion, excepting Situations Wanted, 20 cents per line, 3 lines half a dollar. Answers sent in our care will be forwarded.**

## METALS, MACHINERY AND SUPPLIES FOR SALE

### FOR SALE

A fully equipped JOB PLATING and HARDWARE SPECIALTY MANUFACTURING plant, in an Eastern Pennsylvania city of 100,000.

$5,000.00 job plating annually (can be doubled). A thoroughly established trade on HARDWARE SPECIALTIES in the United States and FOREIGN, at good profits.

Working full time with orders on hand.

VERY GOOD reasons for selling. January 1st, 1908, stock account showed $6,000.00; will sell for less to quick buyer. A splendid opportunity to get a good ESTABLISHED, fully EQUIPPED and MANNED business for less than cost. Address,

**OPPORTUNITY, care The Metal Industry**

**We have for sale a**

**SECOND HAND PLATING DYNAMO**

on account of same being too small for our work:

**One 6 volt Card Machine** rated at 700 amperes, cost $350.00, new, 8 years ago **for sale at $80.00**

F. O. B. PERU, ILL.

**AMERICAN NICKELOID & MFG. CO., Peru, Ill.**

### FOR SALE

**One No. 275 Steele-Harvey Metal Melting Furnace.**

Same was built a little over a year ago, but has never been used. For further information address

**STEELE-HARVEY, care THE METAL INDUSTRY**

**FOR SALE** Gutta Percha and Metals of all Kinds

WALSH'S SONS & CO., Newark, N. J.

FOR SALE.—A quantity of 4½ in. russet leather 18-ply buffs. Correspond with THE CRANE & BREED MANUFACTURING COMPANY, 1227 W. 8th Street, Cincinnati, Ohio.

FOR SALE—AT A SACRIFICE, A BRICK FOUNDRY FACTORY with all of the machinery for smelting. Located at Utica, N. Y. For further information inquire of SAMUEL ELLIS, 322 Canal street, New York City.

FOR SALE—A PHOENIX PLATING DYNAMO; 6 volts, 3,000 amperes; direct connection to 33 H. P. 230 volt direct current motor; in good working condition. Address BOX W., care THE METAL INDUSTRY.

FOR SALE—LATHES and DRILL CHUCKS, Face Plate Jaws, Centering Chucks, Planer Chucks, etc. Immediate shipment guaranteed. Address LATHE CHUCK, care THE METAL INDUSTRY.

## METALS, MACHINERY AND SUPPLIES WANTED

We PAY CASH for GOLD, SILVER and PLATINUM SCRAPS, SOLUTIONS and SWEEPINGS; Old Nickel Anodes, New or Old Mercury, Bismuth, Gas Mantle Dust and Chemicals, etc. EMPIRE CHEMICAL WORKS, 416 East 52d street, New York City.

CASH PAID for old precious metals and minerals in any form. Gas mantle dust, bronze powder, bismuth, platinum, mercury, nickel, etc. Address JOSEF RADNAI, 36 Fulton street, New York City.

## OPPORTUNITIES

### British New Patents Act

Advertiser is desirous of undertaking the manufacture of American patents in England. Stamped work of all description. Aluminum work a specialty.

**WILFRED & CO., Ltd.**

BIRMINGHAM, ENGLAND

### BRASS FOUNDERS

Practical information bureau, 40 years' experience with trade secrets, from the furnace to the finisher. Work in all known metals, from common brass to the secret process of tempering copper. 40 formulas, worth a thousand dollars.

**PREPAID TO ANY ADDRESS ON RECEIPT OF FIVE DOLLARS.**

**JAMES ALLEN**

**2552 J Street, : : : SAN DIEGO, CAL.**

FACTORY TO RENT, BROOKLYN; LOFT TO RENT—Complete Foundry in Brooklyn, including small Nickel Plating Plant, 3,600 square feet, first loft, steam heated, and 7 horse power, $1,500 a year. Additional horse power up to 50 horse power, at $35 per horse. Must be seen to be appreciated; any offer considered.

Light four sides, 38 windows, height of ceiling 12 feet; also use of two furnaces, and core oven and other machinery without extra expense. Water, three-quarters city rate; also watchman on premises; nothing like it in Brooklyn for the price. Address F., care THE METAL INDUSTRY, 61 Beekman street, New York city.

FACTORY TO RENT, BROOKLYN—INTERESTING to Western Manufacturers who would like the opportunity to open Eastern factory at small expense; would make a fine factory, stamping sheet metal goods, machine or experimental shop.

Entire building, standing alone, 20 x 50 1,500 square feet, 1,000 square feet concentrated ground floor and 500 square feet on floor above at 20 cents a square foot; $300 per year and ten horse power, $40 per horse, making $700 a year total rent; unlimited power and water; low figures; light magnificent. Near Wallabout Market, Brooklyn. Immediate occupancy. Twenty minutes from New York end of Brooklyn Bridge. Address F., care THE METAL INDUSTRY, 61 Beekman street, New York City.

Having recently received quite a number of inquiries on the prices of sheet metals (brass, aluminum, white metal, etc.), tools and supplies used by engravers and metal workers in general, I would appreciate it if you would interest some of the reliable concerns known to you and dealing with these products to favor me with their catalogues, price lists and especially with their lists of export discounts. JOSE M. MENDOZA, Filipinas Bo. 530, Aparto 1096, Lima, Peru.

WANTED—Going manufacturing concern wants to acquire rights to manufacture established metal specialties, small machinery with tools. Either under contract or on a royalty basis. Manufacturing facilities exceptional. For further particulars address O-18, care THE METAL INDUSTRY.

J. P. FANNING, Machinist, 678 Jefferson Avenue, Brooklyn, N. Y.—Maker of Moulds for Casting Solder, Babbitt Metal, Bar Lead, etc. We also manufacture small work. Write for particulars.

WANTED—Reliable parties to canvass for subscriptions to THE METAL INDUSTRY. Liberal commission. For further particulars address THE METAL INDUSTRY, 61 Beekman street, New York.

GOOD SALES, GOOD EQUIPMENT, GOOD ASSISTANTS and GOOD POSITIONS may be obtained by the insertion of a METAL INDUSTRY WANT.

## INQUIRIES.

Inquiries received by THE METAL INDUSTRY for Metals, Machinery and Supplies. Further particulars may be obtained by addressing the inquiry number, care THE METAL INDUSTRY.

INQUIRY No. 33.—Would like to correspond with firms who can supply us with a babbitting machine for lining car journals.

INQUIRY No. 34.—Would like to hear from firms who can furnish an apparatus for testing the hardness of babbitt metal.

INQUIRY No. 35.—Would like to hear from firms manufacturing composition non-conducting metals.

INQUIRY No. 36.—Would like to correspond with manufacturers of an automatic furnace for casting solder.

INQUIRY No. 37.—Would like to correspond with manufacturers of sheet zinc that will stand stretching on dies in power presses.

INQUIRY No. 38.—Would like to hear from firms who manufacture machinery for making lead traps.

**(Want Ads Continued on Next Page.)**

# Metal Prices, November 9, 1908

## PRICES ON BRASS MATERIAL—MILL SHIPMENTS.

**In effect Aug. 10, 1908, and until further notice.**

To customers who purchase less than 40,000 lbs. per year and over 5,000 lbs. per year.

| | Net base per lb. High Brass. | Low Brass. | Bronze. |
|---|---|---|---|
| Sheet | $0.14¼ | $0.16½ | $0.18½ |
| Wire | .14½ | .16¾ | .18¾ |
| Rod | .14½ | .16¾ | .19¼ |
| Brazed tubing | .20¾ | — | .23½ |
| Open seam tubing | .18¾ | — | .21½ |
| Angles and channels, plain | .20¾ | — | .24¼ |

**30% discount from all extras as shown in American Brass Manufacturers' Price List No. 7.**

### NET EXTRAS FOR QUALITY.

Sheet—Extra spring, drawing and spinning brass.. ¾c. per lb. net advanec
" —Best spring, drawing and spinning brass.... 1½c. " " " "
Wire—Extra spring and brazing wire..... ¾c. " " " "
" —Best spring and brazing wire..... 1c. " " " "

**To customers who purchase less than 5,000 lbs. per year.**

| | Net base per lb. High Brass. | Low Brass. | Bronze. |
|---|---|---|---|
| Sheet | $0.15¼ | $0.17½ | $0.19½ |
| Wire | .15½ | .17¾ | .19¾ |
| Rod | .15½ | .17¾ | .20¼ |
| Brazed tubing | .21¾ | — | .24½ |
| Open seam tubing | .19¾ | — | .22½ |
| Angles and channels, plain | .21¾ | — | .25¾ |

**5% discount from all extras as shown in American Brass Manufacturers' Price List No. 7.**

### NET EXTRAS FOR QUALITY.

Sheet—Extra spring drawing and spinning brass.. ¾c. per lb. net advance
" —Best spring, drawing and spinning brass.... 1½c. " " " "
Wire—Extra spring and brazing wire..... ¾c. " " " "
" —Best spring and brazing wire..... 1c. " " " "

## BARE COPPER WIRE—CARLOAD LOTS.

15¾c. per lb. base.

## SOLDERING COPPERS.

300 lbs. and over in one order..... 18½c. per lb. base.
100 lbs. to 300 lbs. in one order..... 19c. " " "
Less than 100 lbs. in one order..... 20½c. " " "

## PRICES FOR SEAMLESS BRASS TUBING.

From 1¼ to 3½ in. O. D. Nos. 4 to 13 Stubs' Gauge, 18c. per lb.
Seamless Copper Tubing, 21c. per lb.

**For other sizes see Manufacturers' List.**

## PRICES FOR SEAMLESS BRASS TUBING Iron Pipe Sizes.

| Iron Pipe Size | ⅛ | ¼ | ⅜ | ½ | ¾ | 1 | 1¼ | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price per lb. | 20 | 25 | 20 | 19 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 19 | 20 | 22 | 24 | 25 |

### PRICE LIST OF IRON LINED TUBING—NOT POLISHED.

| | Per 100 feet— Brass. | Bronze. |
|---|---|---|
| ⅜ inch | $8 | $9 |
| ½ inch | 8 | 9 |
| ⅝ inch | 10 | 11 |
| ¾ inch | 12 | 13 |
| ⅞ inch | 14 | 15 |
| 1 inch | 18 | 20 |
| 1⅛ inch | 22 | 24 |
| 1¼ inch | 25 | 27 |
| 1½ inch | 32 | 35 |
| 1¾ inch | 45 | 48 |
| 2 inch | 56 | 60 |

Discount 45 and 5%.

## PRICES FOR MUNTZ METAL AND TOBIN BRONZE.

Muntz or Yellow Metal Sheathing (14" x 48")..... 15c. lb. net base
" " " Rectangular Sheets other than Sheathing..... 17c. " " "
" " " Rod..... 16c. " " "
Tobin Bronze Rod..... 17c. " " "

Above are for 100 lbs. or more in one order.

## PLATERS' METALS.

Platers' bars in the rough, 23½c. net.

German silver platers' bars dependent on the percentage of nickel, quantity and general character of the order.

Platers' metal, so called, is very thin metal not made by the larger mills and for which prices are quoted on application to the manufacturers.

## PRICES FOR SHEET BLOCK TIN AND BRITANNIA METAL.

Not over 18 in. in width, not thinner than 23 B. S. Gauge, 4c. above price of pig tin in same quantity.

Not over 35 in. in width, not thinner than 22 B. S. Gauge, 5c. above price of pig tin.

## PRICE LIST FOR SHEET ALUMINUM—B. & S. Gauge.

| Wider than..... and including..... | 3in. 12in. in coils. | 6in. 14in. | 14in. 16in. | 16in. 18in. | 18in. 20in. | 20in. 24in. | 24in. 30in. | 30in. 36in. | 36in. 40in. |
|---|---|---|---|---|---|---|---|---|---|
| No. 13 and heavier..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 14..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 15..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 16..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 17..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 18..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 41 | 41 |
| " 19..... | 36 | 36 | 38 | 38 | 38 | 38 | 41 | 42 | 42 |
| " 20..... | 36 | 38 | 38 | 38 | 38 | 40 | 43 | 44 | 46 |
| " 21..... | 36 | 40 | 40 | 40 | 40 | 42 | 45 | 46 | 52 |
| " 22..... | 36 | 40 | 40 | 40 | 42 | 42 | 45 | 49 | 53 |
| " 23..... | 36 | 40 | 40 | 40 | 42 | 42 | 45 | 51 | 54 |
| " 24..... | 36 | 40 | 42 | 44 | 44 | 44 | 47 | 53 | 56 |
| " 25..... | 38 | 41 | 43 | 45 | 45 | 45 | 48 | 55 | 59 |
| " 26..... | 38 | 41 | 44 | 48 | 48 | 48 | 53 | 57 | 63 |
| " 27..... | 38 | 42 | 46 | 50 | 50 | 51 | 56 | 60 | 66 |
| " 28..... | 38 | 42 | 48 | 50 | 51 | 51 | 58 | 64 | 69 |
| " 29..... | 40 | 43 | 50 | 52 | 54 | 54 | 63 | 69 | 74 |
| " 30..... | 40 | 44 | 52 | 54 | 58 | 64 | 72 | 74 | 79 |
| " 31..... | 45 | 49 | 57 | 60 | 65 | 73 | 76 | 79 | 85 |
| " 32..... | 47 | 51 | 59 | 63 | 71 | 79 | 86 | 92 | 97 |
| " 33..... | 49 | 53 | 62 | 67 | 75 | 86 | 93 | 102 | 112 |
| " 34..... | 52 | 57 | 64 | 72 | 80 | 93 | 105 | 112 | 122 |
| " 35..... | .. | 67 | 72 | 82 | 92 | 102 | 117 | 127 | .. |
| " 36..... | .. | 82 | 92 | 102 | 117 | 122 | 137 | .. | .. |
| " 37..... | .. | 106 | 110 | 131 | 146 | 161 | 176 | .. | .. |
| " 38..... | .. | 126 | 141 | 156 | 171 | 186 | 206 | .. | .. |
| " 39..... | .. | 146 | 166 | 186 | 206 | 226 | .. | .. | .. |
| " 40..... | .. | 176 | 206 | 226 | 246 | .. | .. | .. | .. |

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| Stubs' G. B. & S. G. | 1¼" | 1½" | 1¾" | 2" | 2¼" | 2½" | 2¾" | 3" | 3¼" | 3½" | 3¾" | 4" | 4¼" | 4½" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 to 11 | 3 | to | 9 | BASE PRICE 45 CENTS. | | | | | | | | 3 | 3 | 3 | 10 |
| 12 | | 10 | | | | | | | | | | 6 | 6 | 6 | 13 |
| 13 | | 11 | | | | | | | | | | 10 | 10 | 10 | 16 |
| 14 | | 12 | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 13 | 13 | 13 | 19 |
| 15 | | 13 | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 19 | 19 | 19 | 22 |
| 16 | | 14 | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 16 | 19 | 22 | 25 | 35 |
| 17 | | 15 | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 19 | 22 | 25 | 29 | 38 |
| 18 | | 16 | | 13 | 13 | 13 | 13 | 13 | 13 | 19 | 22 | 25 | 29 | 32 | 44 |
| 19 | | 17 | | 16 | 16 | 16 | 16 | 16 | 22 | 25 | 29 | 32 | 35 | 41 | 48 | 54 |
| 20 | | 18-19 | | 19 | 19 | 19 | 19 | 22 | 22 | 25 | 29 | 35 | 35 | 41 | 60 | 60 |
| 21 | | 20 | | 22 | 22 | 22 | 22 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 22 | | 21 | | 25 | 25 | 25 | 25 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
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| 24 | | 23 | | 57 | 60 | 60 | 63 | 67 | .. | .. | .. | .. | .. | .. | .. | .. |
| 25 | | 24 | | 73 | 76 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |

Prices are for ten pounds or more at a time. For prices on smaller sizes send for manufacturers' list.

## PRICE LIST FOR ALUMINUM ROD AND WIRE.

| Diameter. B. & S. G'ge. | 000 to No. 10. | No. 11. | No. 12. | No. 13. | No. 14. | No. 15. | No. 16. | No. 17. | No. 18. | No. 19. | No. 20. | No. 21. | No. 22. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price, per lb. ... | 34 | 34½ | 34½ | 35 | 35½ | 36 | 36½ | 37 | 38 | 39 | 40 | 43 | 48 |

200 lbs. to 30,000 lbs., 3 cents off list; 30,000 lbs. and over, 4 cents off list.

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| 15 | .55 | | |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | per cent. | to No. | 19, B. & S. Gauge, inclusive | | | $0.60 |
| 6 | " | " | 19, | " | " | .70 |
| 9 | " | " | 19, | " | " | .85 |
| 12 | " | " | 19, | " | " | 1.00 |
| 15 | " | " | 19, | " | " | 1.15 |
| 16 | " | " | 19, | " | " | 1.20 |
| 18 | " | " | 19, | " | " | 1.30 |

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BIRMINGHAM, ENGLAND

### BRASS FOUNDERS

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FACTORY TO RENT, BROOKLYN; LOFT TO RENT—Complete Foundry in Brooklyn, including small Nickel Plating Plant, 3,600 square feet, first loft, steam heated, and 7 horse power, $1,500 a year. Additional horse power up to 50 horse power, at $35 per horse. Must be seen to be appreciated; any offer considered.

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FACTORY TO RENT, BROOKLYN—INTERESTING to Western Manufacturers who would like the opportunity to open Eastern factory at small expense; would make a fine factory, stamping sheet metal goods, machine or experimental shop.

Entire building, standing alone, 20 x 50 1,500 square feet, 1,000 square feet concentrated ground floor and 500 square feet on floor above at 20 cents a square foot; $300 per year and ten horse power, $40 per horse, making $700 a year total rent; unlimited power and water; low figures; light magnificent. Near Wallabout Market, Brooklyn. Immediate occupancy. Twenty minutes from New York end of Brooklyn Bridge. Address F., care THE METAL INDUSTRY, 61 Beekman street, New York City.

Having recently received quite a number of inquiries on the prices of sheet metals (brass, aluminum, white metal, etc.), tools and supplies used by engravers and metal workers in general, I would appreciate it if you would interest some of the reliable concerns known to you and dealing with these products to favor me with their catalogues, price lists and especially with their lists of export discounts. JOSE M. MENDOZA, Filipinas Bo. 530, Aparto 1096, Lima, Peru.

WANTED—Going manufacturing concern wants to acquire rights to manufacture established metal specialties, small machinery with tools. Either under contract or on a royalty basis. Manufacturing facilities exceptional. For further particulars address O-18, care THE METAL INDUSTRY.

J. P. FANNING, Machinist, 678 Jefferson Avenue, Brooklyn, N. Y.—Maker of Moulds for Casting Solder, Babbitt Metal, Bar Lead, etc. We also manufacture small work. Write for particulars.

WANTED—Reliable parties to canvass for subscriptions to THE METAL INDUSTRY. Liberal commission. For further particulars address THE METAL INDUSTRY, 61 Beekman street, New York.

GOOD SALES, GOOD EQUIPMENT, GOOD ASSISTANTS and GOOD POSITIONS may be obtained by the insertion of a METAL INDUSTRY WANT.

## INQUIRIES.

Inquiries received by THE METAL INDUSTRY for Metals, Machinery and Supplies. Further particulars may be obtained by addressing the inquiry number, care THE METAL INDUSTRY.

INQUIRY No. 33.—Would like to correspond with firms who can supply us with a babbitting machine for lining car journals.

INQUIRY No. 34.—Would like to hear from firms who can furnish an apparatus for testing the hardness of babbitt metal.

INQUIRY No. 35.—Would like to hear from firms manufacturing composition non-conducting metals.

INQUIRY No. 36.—Would like to correspond with manufacturers of an automatic furnace for casting solder.

INQUIRY No. 37.—Would like to correspond with manufacturers of sheet zinc that will stand stretching on dies in power presses.

INQUIRY No. 38.—Would like to hear from firms who manufacture machinery for making lead traps.

**(Want Ads Continued on Next Page.)**

# TRADE WANTS

**AN EXCHANGE FOR THE WANTS OF THE METAL TRADES.**

**Advertisements will be inserted under this head at 40 cents per line, 3 lines one dollar, for each insertion, excepting Situations Wanted, 20 cents per line, 3 lines half a dollar. Answers sent in our care will be forwarded.**

## SITUATIONS OPEN

WANTED—POLISHERS and GRINDERS on BRONZE work. Address HAYES & MACFARLAND, Columbus and Claremont Avenues, Mount Vernon, N. Y.

WANTED—A young man who can take charge of COPPER and BRASS TUBE BENDING and BRAZING DEPARTMENT in a shop located away from New York. A permanent place assured for the right party. For further particulars address BRAZING, care THE METAL INDUSTRY.

WANTED—A first-class BRASS FINISHER who is capable of doing all round work. Must be sober, industrious and not afraid of work. Good wages and a permanent position to the right kind of a man. Address O-4, care THE METAL INDUSTRY.

WANTED—A first-class POLISHER and BUFFER who is capable of doing all round work. Must be a hustler and not afraid to work. Good wages and a permanent position to the right man. Address O-5, care THE METAL INDUSTRY.

WANTED—A first-class PATTERN FILER who is capable of doing all round bench work. Must be sober and a hustler. Address O-6, care THE METAL INDUSTRY.

WANTED—A man to take charge of a PLATING ROOM; a man with some mechanical ability who is a good plater on all solutions and who can handle some help. We will pay highest wages. Address O-25, care THE METAL INDUSTRY.

WANTED—A first class BRASS FOUNDRY FOREMAN capable of making a success in a foundry making BRASS VALVES and COCKS. One that can handle molding machines preferred. Factory located in western Pennsylvania. Highest wages will be paid the right party. State age and experience. Address BRASS VALVES, care THE METAL INDUSTRY.

WANTED—Practical men to do work themselves and to operate three Hill crushers, also furnaces making BRASS and COMPOSITION INGOT, and attend to machinery. Sixty miles from St. Louis. Only experienced men need apply. Address O-3, care THE METAL INDUSTRY.

## SITUATIONS WANTED

**Advertisements under this head will be inserted for 20 cents per line, 3 lines for Half a Dollar.**

SITUATION WANTED—FOREMAN PLATER who understands all solutions is open for a position. Have ability to take full charge of Plating, Polishing and Lacquering Departments. Address O-9, care THE METAL INDUSTRY.

SITUATION WANTED.—A PLATER with over 20 years' experience is open for a position as Foreman, Superintendent or Inspector for Nickel Plating, Polishing and Buffing Departments at some large manufacturing works. Can give A1 references. Address O. K. E., care THE METAL INDUSTRY.

SITUATION WANTED.—Factory Superintendent and Manager who is thoroughly experienced on brass goods and metal specialties. Good organizer and system expert. Can figure costs, manage office and sell goods. Am acquainted with large buyers throughout the country. If you have a good proposition, address FACTORY SUPERINTENDENT, care THE METAL INDUSTRY.

SITUATION WANTED.—By a FOREMAN of Polishing, Buffing and Plating Departments. Have had 16 years' experience on typewriters, fine mechanical tools and miscellaneous work. Up-to-date, able to handle help to best advantage to turn out work at low cost. Can furnish the best of references. Address N-5, care THE METAL INDUSTRY.

SITUATION WANTED.—By a Plater, Polisher and Buffer, with 15 years' experience. Hustler and can produce good work. Sober, reliable and can furnish the best of references from my last employer. Address N-6, care THE METAL INDUSTRY.

SITUATION WANTED.—By a Brass Foundry Foreman or Superintendent with 16 years' experience. Thoroughly familiar with job work, light and heavy castings. Also aluminum castings. Experience in mixing, handling power machines, oil, and gas and coke furnaces. Good executive ability. Can furnish the best of references and will go to any town or city. Address N-7, care THE METAL INDUSTRY.

SITUATION WANTED—Have had 15 years' experience in the silver plate industry, including the soldering, polishing, sand and tripoli buffing, spinning and also have a knowledge of plating. Would like to take charge of a small plant. Address O-10, care THE METAL INDUSTRY.

SITUATION WANTED—By a FOREMAN PLATER, with 18 years' experience and best reference. Fine work preferred. Address O-11, care THE METAL INDUSTRY.

A FOUNDRY FOREMAN of 20 years' experience wants position. Is capable of taking charge of valve and plumbers' brass goods foundry; is experienced in mixing metals; has had charge for 6 years of plant melting 6 to 8 tons per day. Can furnish best of references. Address CAPABLE, care THE METAL INDUSTRY.

SITUATION WANTED—A SALESMAN calling upon the Druggists and Perfumery trades with a line of bottle stoppers is desirous of securing on a commission basis the agency for a line of screw caps, tin cans, etc. Address N-2, care THE METAL INDUSTRY.

SITUATION WANTED—By an expert on metals. Would like to take charge of a new concern starting in the manufacture of white metal alloys. Have had 25 years' experience in the metal trade. Address N-3, care THE METAL INDUSTRY.

## SITUATIONS WANTED—Cont'd.

SITUATION WANTED—By a FOREMAN PLATER thoroughly understanding Brass, Bronze, Cyanide Copper, Acid Copper, Nickel, Black Nickel, Silver, Electro and Dip Cold Solutions. Can produce Rose Green, Ivory, Roman Gold, Silver Oxidize and different finishes in the novelty and buckle line. Burnishing and Lacquering in all details. Address N-4, care THE METAL INDUSTRY.

SITUATION WANTED—PLATER wishes position in New York or New Jersey. Steady, sober and reliable, and can do buffing and polishing. Hustler, and can furnish the best of reference, Eastern and Western. Address J. F. LOCKWOOD, care Wm. Gorman, 26 Ridgewood Avenue, Brooklyn, N. Y.

SITUATION WANTED—By a PLATER of 18 years' experience; 12 years as FOREMAN for large concerns. Thoroughly up-to-date on all solutions, dips and finishes, including Silver Deposit, etc., and rapid methods of turning out work. Sober, reliable and industrious and can furnish the best of references. Would like to hear from firms desiring the services of a first-class man. Address O-17, care THE METAL INDUSTRY.

SITUATION WANTED—By an expert on making ALUMINUM CASTINGS. Can make the strongest and lightest castings on the market. Address ALUMINUM, care THE METAL INDUSTRY.

SITUATION WANTED—By two DIE SINKERS wishing to make a change, together or separate. Wide experience on flat, hollow ware and jewelry, etc.; willing to go anywhere. Address J-8, care THE METAL INDUSTRY.

SITUATION WANTED—By PLATER thoroughly conversant with Bronze, Brass, Copper and Nickel Plating, their oxidizes and finishes. Can furnish best of references. Address BOX NO. 6, care THE METAL INDUSTRY.

SITUATION WANTED—By PLATER with 28 years' experience in all metals, including platinum. Should be glad to hear from firms desiring the services of a first class plater. Address BOX NO. 8, care THE METAL INDUSTRY.

SITUATION WANTED—By a PLATER who is thoroughly familiar with GOLD, SILVER and all finishes. Have had experience in deposit work. Married man, 38 years of age. Address GOLD, care THE METAL INDUSTRY.

SITUATION WANTED—Competent Chaser and Repoussée Worker. Also understands etching and general work. Not afraid to work. Address T. T. S., care THE METAL INDUSTRY.

SITUATION WANTED—By FIRST CLASS PLATER AND POLISHER. Has had 16 years' experience and had charge of men for the last 10 years. Can handle any kind of a plant, understands all finishes and can give good reference. Address O-19, care THE METAL INDUSTRY.

SITUATION WANTED—By a First Class PLATER with several years' experience. Can furnish the best of references. Address O-20, care THE METAL INDUSTRY.

SITUATION WANTED—Position as FOUNDRY FOREMAN or SUPERINTENDENT in brass. Have had twenty years' experience and can give the best of references. Do my own mixing. Address O-21, care THE METAL INDUSTRY.

SITUATION WANTED—By a PLATER on Gold, Silver, Black Nickel, Brass, Bronze and Tin. Plating Verde Green, Oxidizing. Address O-22, care THE METAL INDUSTRY.

SITUATION WANTED—By a PLATER, POLISHER AND BUFFER. First Class all around man. Expert in all solutions and finishes, silver deposit, galvana, plastic, cold galvanizing. Eighteen years' experience in Electro Metallurgy. Address O-23, care THE METAL INDUSTRY.

SITUATION WANTED—By a BRASS MOLDER with over 16 years' experience. Willing to go to any town or city. Can furnish the best of reference. Address S-6, care THE METAL INDUSTRY.

SITUATION WANTED—By a first-class ELECTRO-PLATER. Brass solutions a specialty, also Gold, Silver, Nickel and antique finishes. Can furnish the best of references. Address L. H., care THE METAL INDUSTRY.

SITUATION WANTED—By a first-class PLATER who wishes to change position. Expert on BRASS SOLUTIONS. Address S-3, care THE METAL INDUSTRY.

SITUATION WANTED—By a first-class GOLD, SILVER, NICKEL, BRASS or COPPER and all round PLATER to take charge of large plating plant. Can give the best of references and will consider no position unless steady. Address O-13, care THE METAL INDUSTRY.

SITUATION WANTED—By a CHEMIST that can analyze non-ferrous metals and alloys and assay drosses. Address O-14, care THE METAL INDUSTRY.

SITUATION WANTED—By a FOREMAN PLATER who is an expert on NICKEL, BRASS and COPPER PLATING. Would like to secure a position with a good automobile Company or a firm that has a large NICKEL PLATING PLANT. Address O-15, care THE METAL INDUSTRY.

SITUATION WANTED—By a BRASS FOUNDRY FOREMAN, 32 years old, thoroughly familiar with light duplicate and jobbing work. Experienced in mixing metals, handling power and hand molding machines, oil, gas and coke furnaces and up-to-date methods of running a foundry. Can furnish the best references from my last employer. Address O-7, care THE METAL INDUSTRY.

SITUATION WANTED—By a BRASS FOUNDRY FOREMAN. Expert on light and heavy work and have a thorough knowledge of molding machines and oil furnaces. Address O-8, care THE METAL INDUSTRY.

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**SEE NEXT PAGE**

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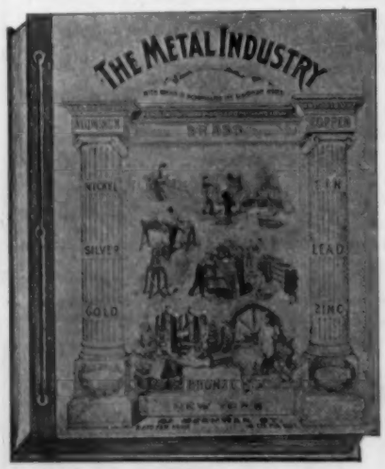


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TRADE

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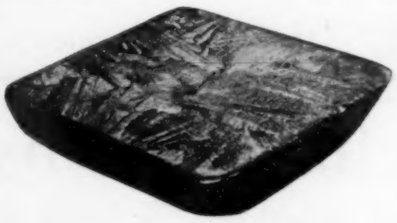

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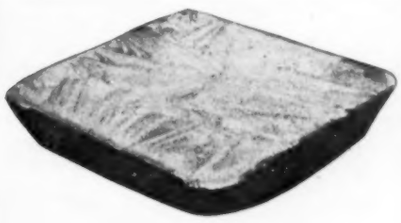

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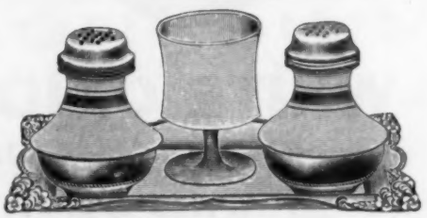

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Owing to a lighter demand at this season than usual for Portables and White Metal Novelties we can take on White Metal Casting Work to a limited extent in our foundry. This is an unusual chance to get high-grade castings at reasonable prices.
F. H. LOVELL & COMPANY
Arlington, N. J.

FOR INDEX OF ADVERTISEMENTS SEE PAGE 36

# The "Brass Founder's" Dream of "Monarch" Santa Claus

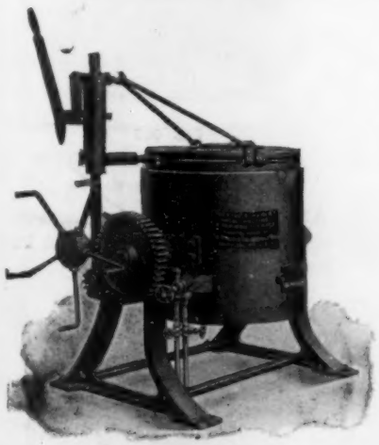
The "Brass Founder" had returned home after a day spent "on the job," at shop, endeavoring to get out the rush of orders which had accumulated since the election. He was troubled and out of sorts, he knew that while business had been quiet, he had been pennywise and pound foolish, he had worked in the rut of old fossils, instead of making "modern improvements" when labor was unemployed and reasonable. Now he was up against it! He had the collar of serfdom around his neck of "Methusleh Coke and Coal" Furnaces and men in shop who worked in proportion turning out "molds." These facts disturbed his rest. But suddenly he seemed to sleep peacefully, his mind was serene, he dreamed that Santa had brought him a copy of METAL INDUSTRY which told about "Monarch Methods." Along with a model of his "brass foundry," all equipped and operating with "1909" furnaces, there were the original "heat from the bottom" "Steele-Harvey" Crucible Tilting, Monarch Stationary drop bottom, and behold! for his branch of locksmith work, the "Monarch Daisy" No. 20. Those "Monarch" furnaces were working with one Rotary Blower, and what! the Core Oven with "Monarch Oil Burner." Molds were dried with Baltimore Skin-drying Portable Burners. A note read, Merry Christmas, from "Monarch" with wishes for increased prosperity. P. S. "Don't worry about settlement."

Now this dream was true. *No Pipe,* nor Ananias.

The "Brass Founder" accepted the omen and sensibly ordered the "50% Economy, Oil or Gas"

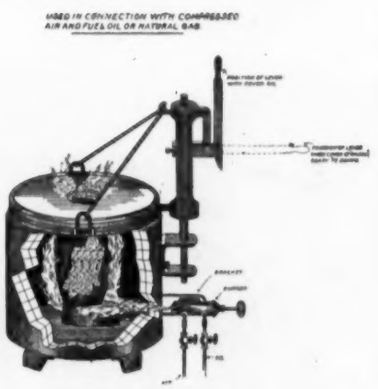
## "Steele-Harvey" Crucible Tilting Melting Furnaces

**(Patented in all countries)**



**Melting Position.**

**Pouring Position.**




**Monarch Stationary.**

Monarch Furnaces push the men to greater metal output, their pay therefore is increased. Clean metal, perfect castings, no oxidation, lowest consistent fuel consumption and air pressure.

We manufacture to your "special requirements."

Stationary Lift Out Crucible, Double Compartment, (very small castings).

Ladle and Crucible Heaters, Core Oven Burners, Portable Skin Drying Heaters, Monarch Blowers, Oil Tanks, Burners, Pumps, and general equipment.

**Prices Low. Shipments Quick. Square Dealing. Terms as Preferred.**

**"Our Experience and Advice at Your Service."**

**WRITE FOR 1908 CATALOG "T M I" 4**

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**1200-1206 American Building**

**Shops, Curtis Bay, Md.** **BALTIMORE, MD., U. S. A.**

**Representatives in all leading cities, home and abroad.**

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SMELTERS REFINERS
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PAUL S. REEVES & SON
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COMPOSITION METALS, BABBITT METALS
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WHITE BRASS PHOSPHOR COPPER
CASTINGS UP TO 20,000 POUNDS IN WEIGHT.
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MARINE CASTINGS & PROPELLERS.
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CLEVELAND 1010 WILLIAMSON BUILDING BUFFALO 28 ERIE CO BANK BUILDING.

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Phosphor Bronze and Brass, Climax Bronze,
Manganese Bronze, Ingots and Castings,
Ingot Copper, Ingot Brass, Anti-Acid Bronze,
Babbitt, Type, Linotype and Stereotype Metals,
Tinners' and Brazing Solders,
Wire and Triangular Solders, Bar Tin,
Lead and Block Tin Pipe

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Phosphor Copper
TWO QUALITIES:
10 or 15% Phosphorous Guaranteed
¶ This deoxidizer has been thoroughly tested and pronounced A1.
¶ The percentage of phosphorus contained is either 10% or 15%, no more, no less. If applied to the same composition results will always be the same. No blow holes and pinholes. No castings for the scrap heap.
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ROYAL SILICON COPPER 20 or 30%
ROYAL FERRO SILICON 95%
ROYAL ARSEN COPPER 50%
the latest brass flux
and other alloys
All percentages are guaranteed
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31 & 33 BROADWAY N. Y. CITY

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SILVER-SOLDER
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A tough, easy-flowing, *reliable* hard solder which we can furnish in any quantity or size at rock bottom prices. Quotations upon request
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Hartford, Conn., U. S. A.
Alloys of Precious Metals for all Purposes

TRADE LOVELL MARK TO USERS OF TRADE LOVELL MARK
WHITE METAL CASTINGS
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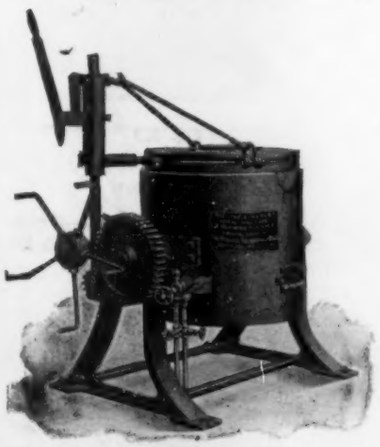

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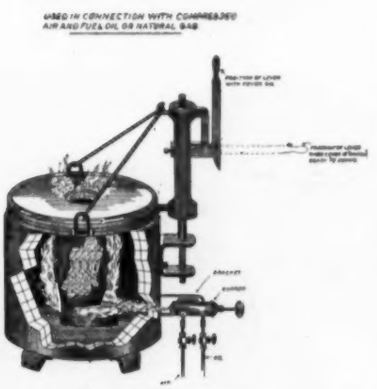

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**1200-1206 American Building**

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# Brass Foundry Supplies

## FORCED and NATURAL DRAFT FURNACES and MAGNETIC SEPARATORS, etc., etc.

**Furnaces for every purpose**

Catalogues ? Sure !

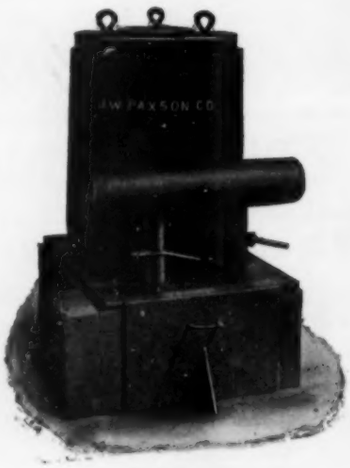


Fig. 621
Forced Draft Furnace

Fig. 622
Natural Draft Furnace
"SQUARE"

Fig. 623
Natural Draft Furnace
"ROUND"

Also made with drop-grate, and with closed bottom to be used with forced draft

Fig. 209
Sprue Cutters. All Sizes

OUR

**New Bulletin No. 18**

TELLS ALL ABOUT

Molding Sand
Core Sand
Fluxing and
Partings

For Brass Foundries

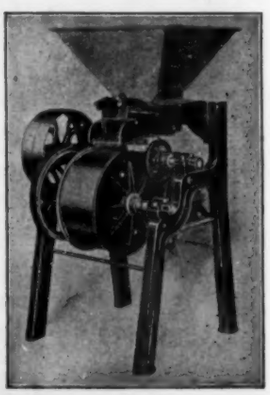

Fig. 76
The Paxson-Sawyer Magnetic Separator

## J. W. PAXSON CO., PHILADELPHIA

**Boys, this is Frank Zeller, our new "Metal Melting Man," who will make good on any furnaces he sells you.**

**Just treat him as well as you have me, is all I ask.**

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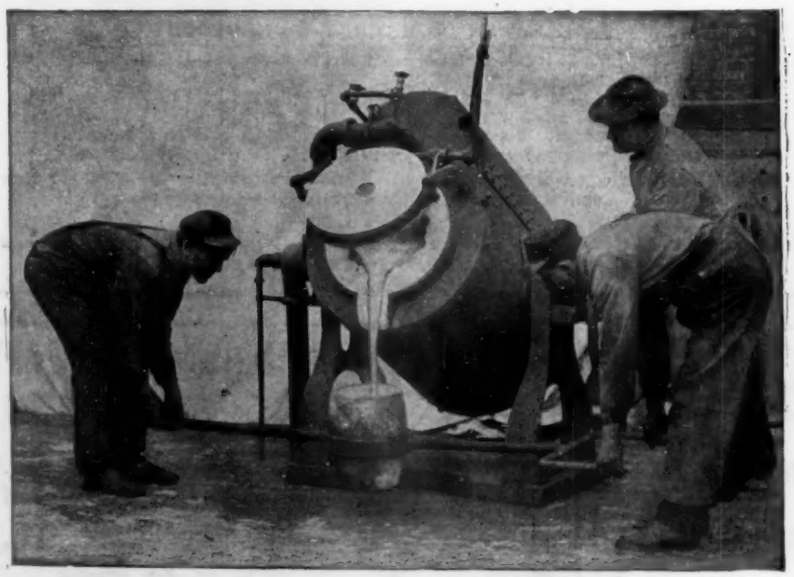
# ROCKWELL Crucible Melting Furnace



*Write for Catalog*

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### OIL OR GAS FUEL

**Most perfect Crucible Melting Furnace ever made**

Metal always clean. Castings sound and strong. Lowest possible shrinkage.

Cover tilts with furnace. Protects metal, protects operator.

Whole or part of melt may be poured or held without chilling, overheating or oxidizing.

Fire may be continued while pouring. Cover on also.

Crucible never removed from the furnace during its lifetime. No cold air or unconsumed fuel can reach it at any time. Lasts longer than in any other furnace. Always hot at bottom.

Spilled metal retained in furnace and poured without loss.

Not noiseless, but not objectionable.

Simple and inexpensive tile lining. Costs little. Melts much.

**4 Sizes**

| | | | | |
|---|---|---|---|---|
| CRUCIBLES | No. 70, | No. 150, | No. 275, | No. 550, |
| CAPACITIES | 200 lbs. | 400 lbs. | 800 lbs. | 1600 lbs. |

# W. S. ROCKWELL COMPANY, 50 CHURCH ST.. NEW YORK

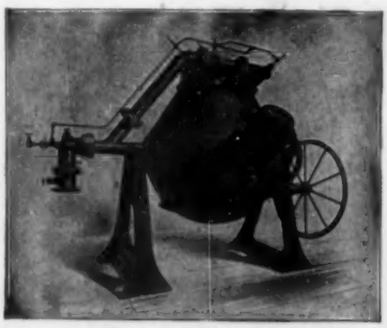
# Brass Furnaces

EQUAL
DRAUGHT
ON ALL
FURNACES IN
SAME SETTING

## The Cover That Swings

Steel Work
Floor Gratings
PLANS: FOR: Complete Settings

THE J. D. Smith Foundry Supply Co.
FOUNDRY ENGINEERS
Cleveland, O.



6 Sizes, 100 to 20,000 lbs. per heat. Fuel: oil or gas

## ECONOMY ALL AROUND—IN FUEL, MELTING SPACE, LABOR.

BRASS, BRONZE, COPPER, ALUMINUM,
MALLEABLE IRON, GREY IRON, STEEL

ALL LINES LEAD TO
**HAWLEY (Schwartz) SYSTEM**
ASK US WHY

Air Furnace : Bessemer Converter : Open Hearth Furnace
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Special Furnaces constructed to meet all metallurgical conditions. Send for New Catalog containing valuable data on Metallurgy

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All sizes and for all purposes.

No. 0 to No. 400.

Established 1866.

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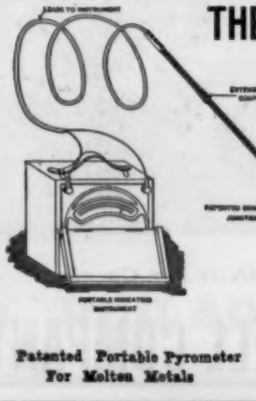
Philadelphia Black Lead Crucible Works,

1322-34 Callowhill Street, PHILADELPHIA



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ELECTRIC PYROMETERS
PORTABLE OUTFITS

For Quickly Taking Temperatures of Molten Metal

Switchboard and Recording Models

New Recording Shunt Ammeters

THE BRISTOL COMPANY
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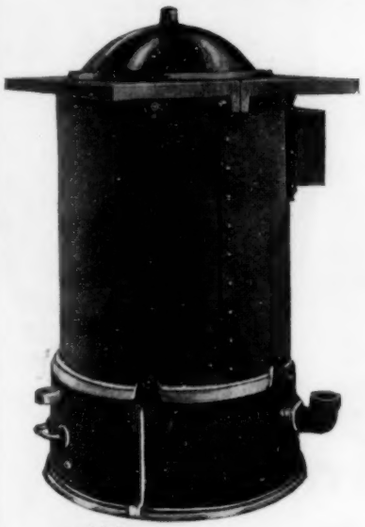
Branches at New York & Chicago

Patented Portable Pyrometer For Molten Metals

## Everything You Need In Your Foundry



There are many varieties of furnaces on the market—good, bad and indifferent, but after all the

# "Standard Construction Circular Brass Furnaces"

with a steel shell are the ones which are used MORE THAN ANY OTHER.

These "STANDARD FURNACES" which we sell are fitted with a solid one-piece cast iron dumping grate, made in four sizes.

We have these furnaces as well as extra grates, covers and complete fire brick linings always in stock ready for immediate shipment. We also have every other supply that the BRASS FOUNDER needs.

EVERYTHING YOU NEED IN YOUR FOUNDRY

**Send for "CATALOG 2-X." It will tell you all about "Obermayer's Supplies."**

## The S. Obermayer Co.

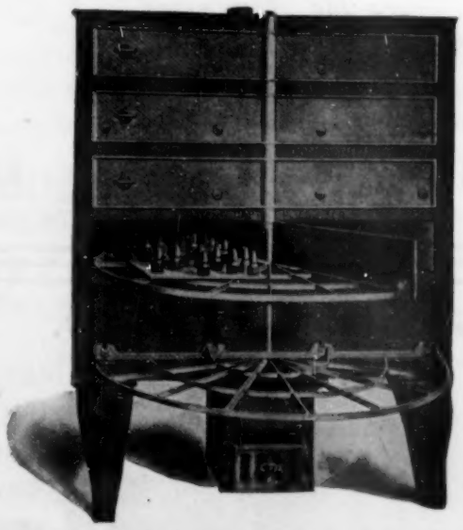
CINCINNATI CHICAGO PITTSBURGH

## We Have Been Manufacturing Since 1874

## THE LATEST AND BEST

**Improved Portable Core Oven**

**PATENTED**



**More Shelf Room. No Escape of Heat in Loading or Unloading. Economical in Fuel. Practical in All Respects.**

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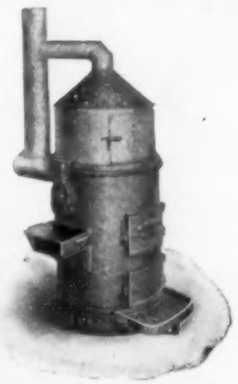
*Also Manufacturers of Graphite, Plumbago, Foundry Supplies and Equipments.*

## R. HOE & CO.'S

## DROSS REFINING FURNACE

**Made for the use of either Coal or Gas as fuel**



**Capacity 225 lbs. of metal**

**Pays for itself many times over in a short time. The price is low and no smelting works should be without one**

**FOR FURTHER PARTICULARS APPLY TO**

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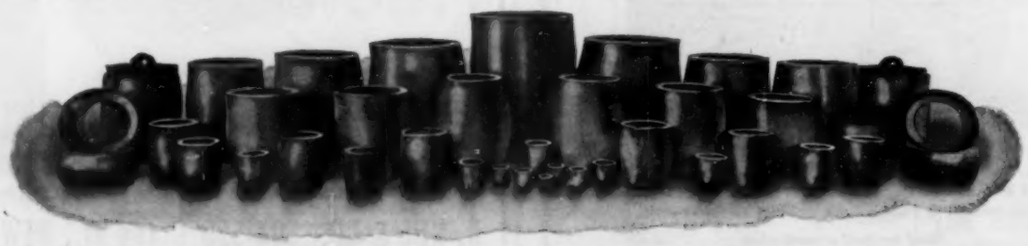
THE WATERBURY CRUCIBLE CO.



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London Office - - - - - - - - 28 Victoria Street

With a New President for Our Country, YOU want a Grand New Crucible for . . . .

Your Business Success of 1909

# PAIGE'S POTS

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## The Kind That Last

When proper care accompanies the use of Dixon's Crucibles they will be always found to give the very best of service. If you do not know just how good these crucibles are, you should try them at once.

Write for new, handsome crucible booklet 12-A.

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**TAUNTON, MASS.**
**Established 1865**

**UNIFORM - - - EFFICIENT**

*Send for List of Sizes and Prices*

# FOR PERFECT PARTINGS
ACCEPT NO OTHER
SEE TRADE MARK

Suitable for Bronze, Brass or Any Other Metal

FAR SUPERIOR TO
Lycopodium—Charcoal—Charcoal Facings

FOR Straight and Difficult Lifts; Sticky Patterns Slanting Copes and Deep Chasings

# PERFECT PARTINGS
MEAN
Sharper Castings — Smoother Surfaces
Perfect Corners — Easier Lifts

# DOGGETT'S PARTING
PERMITS
Swabbing and Slicking—Will not burn off the face of the mould, wash or cut.

Manufactured by
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YOU can dip this into a pot of brass 500 times and read the exact temperature on a
HOSKINS HEAT GAGE.

PRICE $80.

STRONG
ACCURATE
and
PORTABLE

## Can you afford to guess?

We think not, because your zinc loss from overheated metal is many times the cost of our Heat Gage.
Send for Catalogue and list of users.

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Removes the iron from the brass and copper.

Prevents oxidation, thereby reducing the percentage of loss in melting.

Reduces the oxides to their metallic state.

Produces a more homogeneous alloy and causing a greater fluidity in the metal which prevents blow holes.

Imparts a greater tensile strength to the metal. Positively removes all impurities in metal. We guarantee to save you from five to six per cent in melting. Write for pamphlet and prices.

Put up in 50 lb. Trial Packages.

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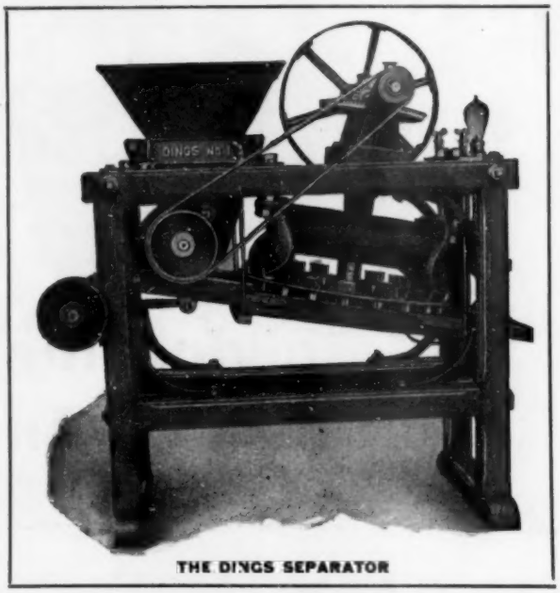

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TO SUIT ANY REQUIREMENTS

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MOST PRACTICAL, EFFICIENT AND ECONOMICAL

For BRASS FOUNDERS and all other purposes requiring the separation from Magnetic Metals.

Orders solicited subject to approval after 30 days' trial.

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An alloy designed to take the place of TIN in the manufacture of Brass Castings

## IT SAVES
## THE BRASS FOUNDER

fully 33⅓% of the usual outlay for Tin and 10 to 30% upon the cost of finishing castings

Sample castings made with Bassite will be forwarded to anyone interested, and 100 lbs. will be sent for trial with no obligation to pay unless our claims are substantiated

THIS IS WORTH INVESTIGATING

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# YOU MUST TRIM
THE SPRUES FROM
# YOUR CASTINGS

What you need is a SHUSTER FOOT LEVER or POWER SPRUE CUTTER. Soon pays for itself in time and labor.

They do the work quick and easy, making the cuts so clean and close that castings trimmed in this way seldom need grinding.

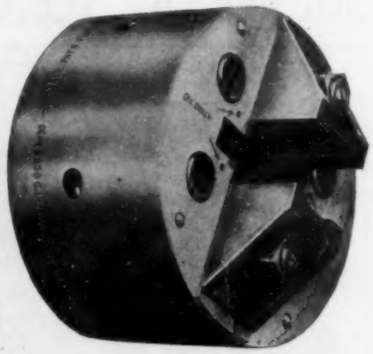
You can't afford to be without one. Lasts a lifetime.

Do you ever have occasion to use wire, straightened and cut into certain lengths? Or have any riveting to do?

For description and prices write

## THE F. B. SHUSTER CO.
Formerly JOHN ADT & SON,
**NEW HAVEN, CONN.**

# MR. MANUFACTURER:



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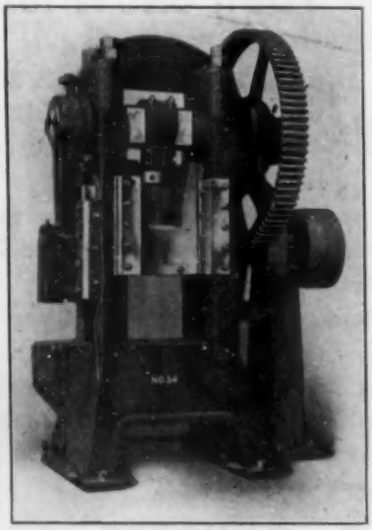

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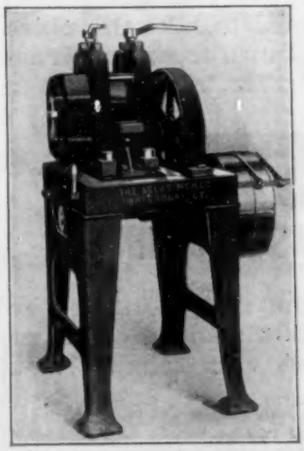
SO. MURIEL STREET, PITTSBURGH

*Established 1803*

# "THE ATLAS"



6" x 2½" Rolling Mill with Water Circulation.

Rolls of Best Quality Tool Steel, Carefully Hardened and Ground.

Gear Ratio 4 to 1.

Pulleys 20" x 3".

Net Weight 1,000 lbs.

Can Furnish any Size Mill up to 12" dia. Rolls.

Width of Face as Required.

Power Presses.

Foot Presses.

Metal Straightening Rolls.

Metal Slitters. Special Machinery.

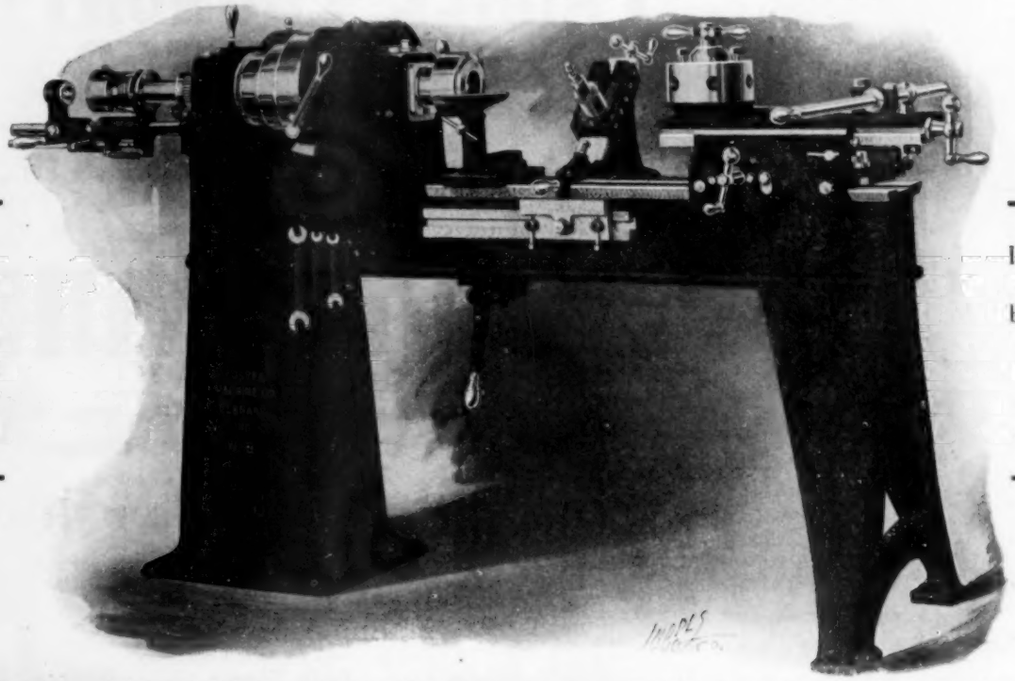
**THE ATLAS MACHINE CO.**

31 CANAL STREET WATERBURY, CONN.

## FRICTION HEAD, UNIVERSAL OR SET OVER TURRET LATHE

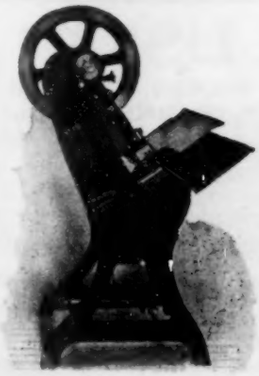
**With or without chasing bar. Independent stops to each hole in Turret**

Turnstile and screw feed, or lever and screw feed can be furnished



Independent stops can be furnished with all Machines including screw feed

**FOSTER-KIMBALL MACHINE CO.,** Builders of Brass Working Machinery
ELKHART, IND., U.S.A.



## "BLISS"

**SHEET METAL WORKING MACHINERY**

The press shown is fitted with a patented stagger feed which

**EFFECTS A SAVING OF FROM 6 TO 15 PER CENT.**

in the amount of stock used over the old method of slitting and feeding strips. It eliminates slitting of sheets and allows of more rapid operation. If you want to reduce cost of production you need this press.

"Bliss" Machines cover every requirement of sheet metal working. Whatever your Press requirements may be, there is a "Bliss" to meet them profitably.

**E. W. BLISS COMPANY**

23 ADAMS STREET BROOKLYN, N. Y.

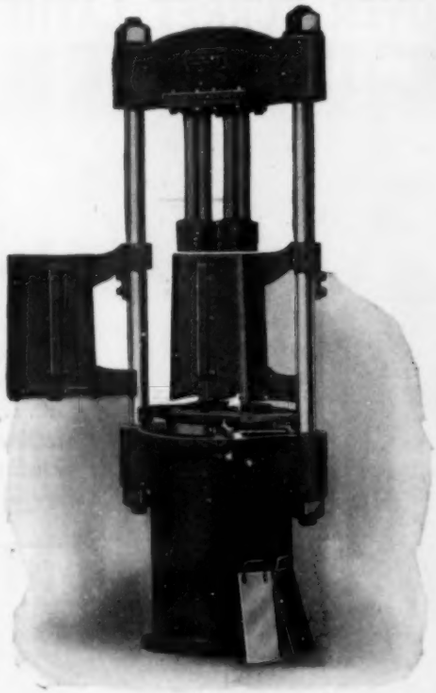
## HYDRAULIC JACKS

If this particular style is not what you have in mind, remember, this is only one of over 250 styles that we make. Jacks for every jack need—whether you work in cramped quarters or have lots of room—"W-S" Jacks "fill the bill" best. Suppose you write for the "Jack Book."

**WATSON-STILLMAN COMPANY**

*Chicago Office, 453 The Rookery* *50 Church St., N. Y. City*


**FOR INDEX TO ADVERTISEMENTS SEE PAGE 36**



CABBAGING PRESS FOR MAKING METAL CABBAGES.

# FARREL FOUNDRY & MACHINE CO.

## ANSONIA, CONN.

BUILDERS OF

# Rolling Mills

For Brass, Copper, Lead, Tin, Zinc, Aluminum, Britannia, Silver, and the softer metals—up to the largest sizes

## Chilled and Gray Iron Rolls

HEAVY CASTINGS

Alligator Shears, 8 sizes — Roll Grinding Machines — Gate Shears — Railroad Cranes
Cinder Grinders — Cabbaging Presses — Sheet Metal Straighteners
Lead Pipe Machinery — Coil Friction Clutches (Pat.) for any speed or power
Gearing—Cut, Machine-moulded, Pattern. — Shafting, Pedestals, Couplings, Etc.

## The TORRINGTON MANUFACTURING CO.

TORRINGTON, CONN.

**Finishing Machinery for Brass and Copper Mills to Order**

Acid Cleaning, Steam and Sawdust Drying-out Machines.
Power Presses, Single and Double Action Cam or Crank.
Flattening, Straightening and Overhauling Machinery.
Multiple Plunger, Cut and Carry Presses.
Slitters, Scrap Cutters and Coilers in a variety of Styles and Sizes.
Channel Iron Mill Trucks to suit any Requirement.
Metal Saws and Power Shears.
Drawbenches.

SPECIAL MACHINERY AND TOOLS OF ANY DESCRIPTION

## ROLLS

FOR STEEL, IRON, BRASS, COPPER AND RUBBER WORKS

**Philadelphia Roll & Machine Company**

23d Street and Washington Avenue, Philadelphia, Pa.

Western Sales Agent, CHARLES R. BRYSON, 501 Curry Bldg., Pittsburgh, Pa.

Cable Address: "Philrollco., Philadelphia." Long Distance and Local 'Phone.

## Cold Rolling Mills

For rolling strips of iron, steel, brass, copper, etc.

Walzmaschinenfabrik

**August Schmitz**

**Dusseldorf 64 Germany**

## Annealing Without Oxidation by Automatic Machines

BATES & PEARD ANNEALING FURNACE CO.

C. M. DALLY, Agent, 29 Broadway, N. Y.

NO PICKLING — Large Saving in Labor and Fuel
NO SCALE — Illustrated Catalogue Sent on Application.

## COPPER HANDBOOK

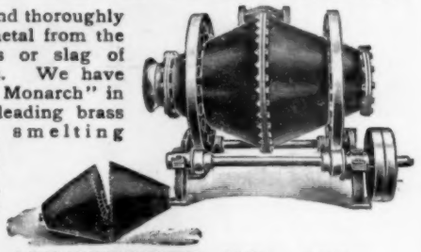
(New Edition issued March, 1908).

WORLD'S STANDARD REFERENCE BOOK ON COPPER

HORACE J. STEVENS, 272 Shelden Building, Houghton, Mich., U. S. A.

## MONARCH CRUSHER AND PULVERIZER

Absolutely and thoroughly reclaims the metal from the ashes, cinders or slag of brass furnaces. We have installed "The Monarch" in some of the leading brass foundries and smelting works, and all users advise that this machine is giving satisfaction.



**O. J. MOUSSETTE CO., Inc.**
Tools, Dies, Presses and Special Machinery
Driggs Ave., cor. North 10th Street, BROOKLYN, N. Y.

LEIMAN'S NEW FOUNDRY

**SAND BLAST $45** Complete
Guaranteed for all Light or Heavy Work

OTHER SAND BLASTS $15 & UP

PRESSURE BLOWERS $17 & UP

For Sand Blasting, Gas Appliances, etc.

**LEIMAN BROS.** 70 Bonykamper Ave. NEWARK, N. J.
62 John Street NEW YORK **MANUFACTURERS**

POINTING MACHINERY — BAIRD — FORMING MACHINERY
MACHINE CO. OAKVILLE, CONN.

## BAIRD

**No. 1 BENCH PRESS**

Mounted on iron table. This special Power Press supersedes the ordinary Foot Press for light blanking, piercing, clipping, forming, closing, swaging and riveting.

Does some of the work 20% quicker than a Foot Press.

Circular B 4 and 5

## THE BAIRD MACHINE CO.

OAKVILLE, CONN., U. S. A.

TELEGRAPH ADDRESS WATERBURY, CONN.

## COMPLETE FILES
OF
## The Metal Industry
BOUND AND UNBOUND

for the years 1906 and 1907 may be obtained by placing your order before the supply is exhausted. Send for Indices and Prices.

1908 issues more interesting than ever.

## OTTO ENGINES

**Otto Suction Gas Producers and Otto Engines**

OTTO OTTO

are reliable and can be operated by men of ordinary intelligence.

J. A. Witter, Engineer for the Beaver Crossing Electric Light & Power Co., Beaver Crossing, Neb., writes:

"Please send me a book of instruction on handling and running your gas producer and engine. I have been running this one on horse sense but that might not work at all times. Plant works fine."

This man without special instructions but with the use of "horse sense" causes his plant to work fine. There is a volume of praise for "OTTO" machinery in Mr. Witter's short letter.

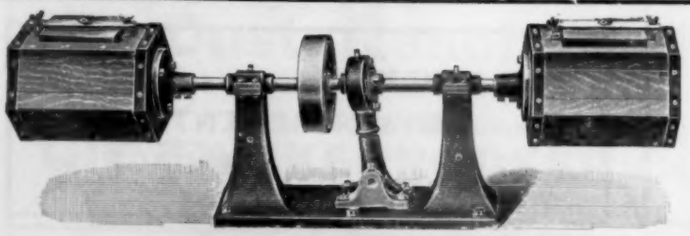
OTTO

THE
**OTTO GAS ENGINE WORKS, Phila, Pa.**
STANDARD OF THE WORLD

IF YOU READ THIS SIGN, OTHERS WILL READ YOURS

## BUFFALO WIRE WORKS CO.

WIRE CLOTH — WIRE SIGNS, WIRE WORK ARTISTIC METAL WORK — SEND FOR OUR CATALOGUE No. 6-C — BUFFALO N. Y.



## Edmonds' Patent Shaking Machines

Polishing and Burnishing without Hand Labor Saves Time and Money for Manufacturers of Brass Foundry, Jewelry, Etc.

**The United Wire and Supply Company**
Agents: 109-119 Summer St., PROVIDENCE, R. I.

## When the Wheel Stops The Belt Stops too!

No flopping, live belt to worry the operator where he has the

**"Whitney" Polishing Lathe**

When the wheel is at rest, the belt is not only safe from accidental contact, but it does not run, and is not in tension.

This saves power and increases belt life.

If you have not yet sent for the rest of the story,

DO IT NOW.

**THE NEW BRITAIN MACHINE CO.**

200 CHESTNUT STREET
NEW BRITAIN, CONN., U. S. A.

## No. 2 Self-Oiling Lathe

THIS lathe, manufactured by us, is the result of years of experience in the manufacture and sale of buffing and polishing machines. Furnished with crucible steel shafts, dust proof bearings, cast iron boxes.

We are manufacturers and dealers in plating and polishing supplies, and solicit an opportunity to submit quotations.

**CHAS. F. L'HOMMEDIEU & SONS CO.**
99-101 S. Clinton Street, Chicago, Ill.

See Pages 34 and 35 for a List of Valuable Articles on Plating and Polishing, and for The Metal Industry Books and Special Offer to Subscribers

*The* METAL INDUSTRY
61 Beekman Street, - NEW YORK

**AMES SWORD COMPANY**
CHICOPEE, MASS.
Manufacturers of
**ENDLESS SEWED POLISHING BELTS**
*Correspondence Solicited* *Discounts Quoted*

**POLISHING BELTS and TAPE**
ALL KINDS
Any width or thickness made to order on short notice and large stock always on hand.
GILMER COMPANY
PHILADELPHIA PA.

**MILLER ELECTRIC CO.**
16-20 William St., NEWARK, N. J.
*Importers and Manufacturers of*
**Platers' and Polishers' Supplies**
**HIGH-CLASS POLISHING WHEELS**
For Grinding, Buffing and Polishing
*Makers of the Celebrated "WALRINE" Leather Wheel*


FOR INDEX OF ADVERTISEMENTS SEE PAGE 36

# NEW DISC SURFACE POLISHER

Designed to polish any flat surface from the rough to a buff finish. Any kind of metal or wood can be ground or polished on this machine.

For FITTINGS, VALVES, SURFACING CASTINGS, FORGINGS, PLATES, TYPEWRITER PARTS, TELEPHONE PARTS, STOVE CASTINGS and all work where a true and polished surface is required.

For the MACHINE SHOP and TOOL ROOM it will do the work in less time and with less cost for labor than any other tool. The cutting discs are sized with Carborundum or Adamite of suitable grain to give the desired finish. These discs are cemented to a steel plate, which is interchangeable. A coarse disc for roughing or cutting down may be cemented to one side of the plate and a finer disc for finishing cemented to the opposite side of the plate.

These machines are built in two sizes, a press for cementing the cutting discs to the steel plate and a patent countershaft are furnished with each machine.

No. 2 with 20 in. disc. Any work up to 16 ins. long by 8 ins. wide can be polished on this machine.

No. 3 with 26 in. disc. Any work up to 21 ins. long by 10 ins. wide can be polished on No. 3 machine.

Write for No. 5 catalogue and prices.

**Bennett & O'Connell Co., Inc.**

**Everything for Electro Plating, Polishing and Buffing**

**97-99-101 So. Clinton St. CHICAGO, ILL.**

# BRUSHES

**Brass, Copper and Steel Wire Brushes**
**An assortment of Machine and Circular Brushes.—**
**Chandelier Manufacturers', Silver and Nickelplater's Brushes, etc.**

**Repairs Promptly Attended to.**

**HERMANN BLUMENTHAL & CO.**
**Manufacturers**
**241-243-245 CENTRE ST., NEW YORK**

# THE ECONOMY
## Wire Wheel Brush

For cleaning all kinds of castings and metal work.

Invaluable to the Brass Founder, Electroplater and in the General Machine Shop.

One Man with an Economy does the work of Five Men with other methods.

Write for Catalog No. 111.

*THE OSBORN MANUF'G CO*
**CLEVELAND, O.**

# The "MORSE RAREFIED" Dust Collector

For Use in Connection With

**EMERY WHEELS, POLISHERS, TUMBLING MILLS, ETC.**

**No Cloth** **No Moving Parts**

# No Dust Reaches the Fan

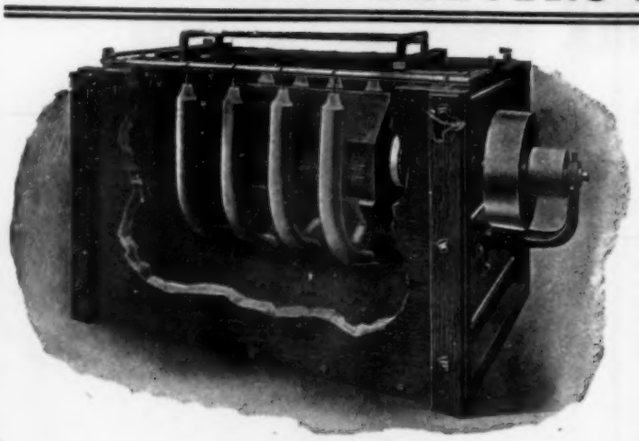
Shipped Anywhere in the United States on 60 Days Trial

**MANUFACTURED EXCLUSIVELY BY**

**THE KNICKERBOCKER COMPANY**
**JACKSON, MICHIGAN**

**Send for Catalog "M"**

# MECHANICAL ELECTRO-PLATING APPARATUS



STYLE "B"

Patented June 22, 1897, Feb. 24, 1903, Oct. 11, 1904.
Other patents pending.

The most efficient plating apparatus in the market. Over 500 in use by the trade.

We will finish sample lots of work without charge.

This apparatus is a proved money saver where small work is to be plated. Can be used in Nickel, Copper, Brass, Zinc and Silver Solutions.

No Stringing. No Wire Used. No Metal Plating Trays or Baskets. No Unstringing. No Loss of Metal.

Capacity: 50 lbs. to 500 lbs., according to size.

Basket can be removed at will—without interfering with drive. In larger sizes basket is raised and lowered automatically.

Useful for plating: Bolts, Nuts, Rivets, Screws, Buckles, Ferrules, Typewriter and Sewing Machine Parts, Lamp Fixtures, Saddlery and Trunk Hardware, Carriage Trimmings, Screw Tops, Shells, Stove Fittings, Locks, Keys and small work.

**Apparatus is Used for Electro-Galvanizing Small Articles**

We Can Furnish a List of Over 200 Users of this Apparatus. Many of the Larger Firms Are Using 10 or more

WRITE FOR BULLETIN No. 113

## *The* HANSON & VAN WINKLE COMPANY

Manufacturers of Dynamos from 50 to 5,000 Ampere Capacity, and all Supplies for Electro-deposition.

(WRITE FOR BULLETINS 105 and 112)

Main Office and Factory
**219-221 Market Street,**
NEWARK, N. J., U. S. A.

Branches
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## Acid-Proof Brick

**FOR TWELVE YEARS**

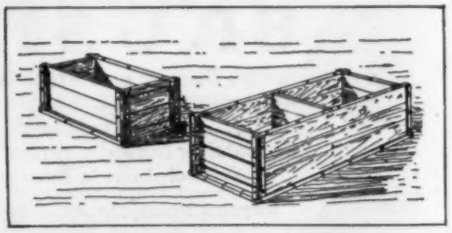
we have been manufacturing a high-grade Acid-Proof Vitrified Non-Absorbent Brick suitable for Acid Tanks, Plating Room flooring, etc., etc.

These brick immersed in a 50% Sulphuric Acid solution for several months show no signs of deterioration.

INQUIRIES SOLICITED.

**NEW YORK BRICK & PAVING CO.**
Syracuse, N. Y.

## TANKS



**Electro-Plating Tanks**
A SPECIALTY
*Write for Prices*
THE A. T. STEARNS LUMBER CO., Neponset, Boston, Mass.

**Manufacturers**
**Purchasing Agents**
**Superintendents**
**Foremen**
ALL READ
**THE METAL INDUSTRY ADS.**

# THE TRIPLEX BUFF

**A New Buff that is rapidly supplanting all other kinds. The letters printed below prove that old style Buffs are now obsolete**

In 1907 this Buff was patented; since then its success has been almost phenomenal. The secret of its great wearing qualities is in the FOLD. Its economy is due to the fact that **EVERY STRAND OF MUSLIN** is used up in doing actual work. When the wheels are worn down the stubs may be returned to us and made into new wheels at nominal cost, using two old wheels to make one new wheel of approximately double the diameter of the old. Read what a few of our customers say:

**Victor Talking Machine Co., Camden, N. J.**

With one [Triplex] wheel we buffed four hundred pieces of our part 714A and three hundred pieces of our part 705A, while with one of our regular buffs we can do only two hundred pieces of our part 714A and two hundred and fifty pieces of 705A, both buffs using about the same amount of Tripoli, but the Triplex buff is much cleaner. Therefore, according to this report, the Triplex buff does more than again as much work as an ordinary buff.

**Pittsburgh Lamp, Brass and Glass Co., Pittsburgh, Pa.**

We have been using buffs made under the Painter Patent since June 18th last, and notwithstanding our increased business this year, our saving in buffs alone has been about $500, and we feel safe in saying that these savings will exceed at the rate of $100 per month for the year 1907. Our foreman's account shows that one wheel made of eight sections, eighteen ply each, under the Painter system, has done as much work as three wheels of same dimensions and quality made of loose buffs. In Tripoli composition we find a saving of about 20 per cent.

In addition to the above, our men are doing more work, better work, and they claim with an expenditure of less labor and physical force.

**The Bryant Electric Co., Bridgeport, Conn.**

We consider them to be the best buff we have ever used at any price, and we expect to use them practically exclusively when our stock of the old type is exhausted.

**John L. Gaumer, Philadelphia, Pa.**

Economy, therefore, will dictate that your Patent Buffs will take the place of the old methods.

Send for Description of our New Two-Bar Silverlite Nickel Anode

## IMPORTANT NOTICE

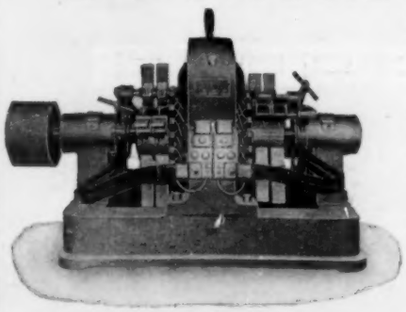
**Any folded buff not stamped with our trade mark "TRIPLEX," used or sold is an infringement on our license patent and our rights in this respect will be strictly enforced.**

We will gladly send a man to demonstrate these wheels on your own work. Send in your orders NOW—they will be filled in regular order at current prices. Send for descriptive bulletin TB.

## ZUCKER & LEVETT & LOEB CO., New York City, U. S. A.

Electro-Galvanizing Outfits Without Royalty on Solution. Low Voltage Generators; and Direct Connected Generator Sets, 50 to 10,000 Amperes Capacity. Complete Plants Installed and All Supplies for Electro Plating and Polishing.

# DYNAMOS



For Electroplating, Electrotyping and Electro-Galvanizing in single, two and three voltages

60 to 10000 Amperes, 3 to 30 Volts

Shunt, compound and separately excited

*Write for Catalogue*

CHAS. J. BOGUE ELECTRIC CO.

513-515 West 29th Street NEW YORK

Cable Address "MACHELECT" 'Phone, 581 Chelsea

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MANUFACTURER OF

## Brass and Nickel Platers' Supplies

**40 and 42 WITHERS STREET BROOKLYN, N. Y.**

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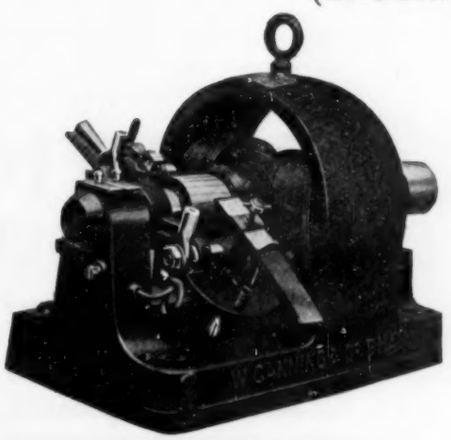
# W. CANNING & Co. BIRMINGHAM (ENGLAND)



Manufacturers of

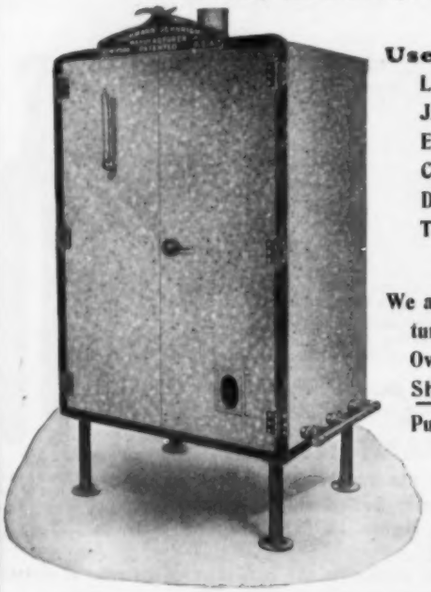
## ELECTRO-PLATING & POLISHING MACHINERY, MATERIALS & CHEMICALS

LOW VOLTAGE DYNAMOS from 20 to 3000 Amperes for Electro-Depositing, Metal Refining, etc. CANNING'S "SPECIAL" Nickel Salts, "LUSTRE" Polishing Composition.

Contractors to H. M. Government and other Governments, Railways, etc. Established 1785

## The GEHNRICH SECTIONAL PORTABLE OVEN

Made in any size and shape



**Used for**
LACQUERING
JAPANNING
ENAMELING
CORE BAKING
DRYING
TEMPERING

**We also Manufacture a Sectional Oven for SHERARDIZING Purposes**

**SEND FOR CATALOGUE**

**HERMANN GEHNRICH**
MANUFACTURER
**518 Water Street - - NEW YORK**

## The American Tripoli Company

**For twenty years grinders of**

**MISSOURI TRIPOLI FLOUR**

in all grades and colors—"Rose," "Cream" and "White."

Missouri Tripoli is the most effective **very fine** abrasive known. Our finest grade—"Air-Dust"—is an impalpable powder, and yet a very fine abrasive.

Our Tripoli Flour is used by all manufacturers of Buffing Compositions, Metal Polishes, Polishing Rouges, etc., etc., and by many of the manufacturers of Mechanics Soaps, Scouring Soaps, Cleaners, etc.

We shall be glad to quote prices upon application.

TRIPOLI FLOUR MAY BE JUST WHAT YOU WANT.

**American Tripoli Company**
**Seneca, Missouri**
**(Also Tripoli Stones for Water-filters)**

INCLUDED AMONG OUR CUSTOMERS ARE SOME OF THE LARGEST MANUFACTURERS OF

Stoves, Plumbers' Brass Goods, Builders' Hardware, Silver Plated Ware, Brass Novelties and Hardware Specialties

## "ELECTRIC" CLEANING COMPOUND

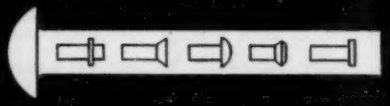
is adapted for cleaning all metals before plating

SOLD ONLY BY

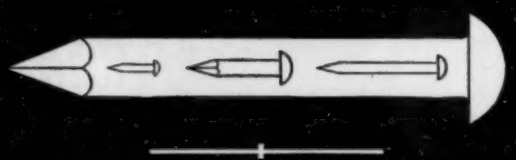
**Cleveland Platers Supply Co.**
**113 St. Clair Ave., N. E., Cleveland, O.**

**"CLEANING BY ELECTRICITY," a booklet on electric cleaning, mailed free to any address**

## RIVETS



## ESCUTCHEON PINS



IRON, BRASS, COPPER
GERMAN SILVER, ALUMINUM, ETC.
AND
PLATED IN ANY FINISH
HAVE MADE THEM SINCE 1850

## JOHN HASSALL INC.

183 LAFAYETTE ST.
NEW YORK, N.Y.

# "Nikolas" Lacquers the Cheapest

"All work of quality must bear a price in proportion to the skill, time, expense and risk attending the invention and manufacture. Those things called dear are, when justly estimated, the cheapest."

Our Lacquers are always of a good reliable quality and will prove more economical than the so-called cheap kinds.

**G. J. NIKOLAS & CO.**

**400-2 W. Van Buren Street** **CHICAGO, ILL.**

Will your Black Lacquer make a rich black, even finish?

Will one gallon cover twice as much surface as an ordinary Black Lacquer?

Will the finish withstand rough usage, moisture, heat, cold, dust?

If not, write for our booklet on Black Lacquering, sent free.

**The Egyptian Lacquer Manufacturing Co.**

**152 Front Street, New York City**

Chicago Stock Rooms, 176 So. Clinton Street

**70%**

**of Our Customers Have Ordered Extra Machines of Us**

**WHY?**

FOSTER BROS. MFG. CO.,
(Metal Bedsteads & Spring Beds)

Eureka Pneumatic Spray Co., UTICA, N. Y., 10/12 '08.
New York City, N. Y.

Gentlemen:—Replying to your letter of the 28th, would say that we are using two of your spraying machines, one of the quart capacity, the other a pint, with very satisfactory results. They do not clog up and the repairs so far have been nothing. We consider your sprayer, for work where it is adapted, the best machine we have had.

Yours truly, FOSTER BROS. MFG. CO.

**It will pay you to apply your Lacquer, Japan, Paints, etc., by our Process. Write for Information.**

**EUREKA PNEUMATIC SPRAY CO.** 400 CANAL ST. NEW YORK

**"New Era" Lacquers HAVE QUALITY** We Buy Quality, Talk Quality, GIVE QUALITY

"Quality is the underlying principle of the most successful businesses."

The manufacturer who calls your attention to the low price of his product has little else to talk about. While we try to keep within the bounds of Low Prices, we do not make a specialty of it.

We can satisfy anyone who is wise enough to see the value of the BEST regardless of the shade difference in the cost.

**THE NEW ERA LUSTRE CO.**

**NEW HAVEN - - - - - - - - - - CONN.**

¶ The ad. writing department of **THE METAL INDUSTRY** prepares advertising copy without charge. If it is a task for you to write your advertisement, write to **THE METAL INDUSTRY**

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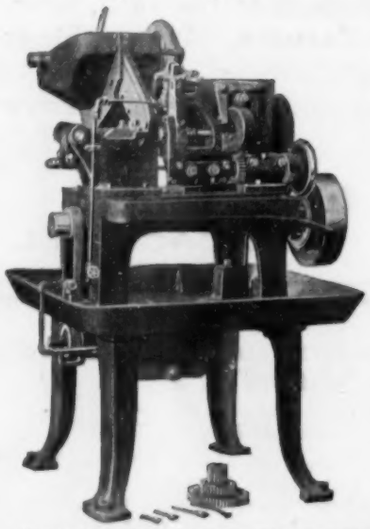
1908 issues more interesting than ever.


**For a List of Articles and Books See Pages 34-35**

**For Index of Advertisements See Page 36**

# SCREW-MAKING MACHINERY



AUTOMATIC SCREW SLOTTING MACHINE

The illustration opposite shows an improved Automatic Slotting Machine for cutting slots across the heads of screw blanks such as fillister head screws, stove bolts and other work of a similar nature.

Our experiments and study preliminary to the designing of this machine were directed toward obtaining accurate work at a rapid rate of production and especial attention was paid to the **rigidity** and output of the slotter. We solicit inquiries regarding this machine as well as descriptions or samples of the work to be done on it.

SCREW THREAD ROLLERS.

**AUTOMATIC**

SCREW BLANK HEADERS.

**THE WATERBURY FARREL FOUNDRY AND MACHINE CO.**

CLEVELAND OFFICE, 1012 WILLIAMSON BLDG.

**WATERBURY, CONN., U. S. A.**

We also build Automatic Rivet and Nut Machinery, Thread Rolling Machines, Drop Presses, Automatic Drop Hammers for Forging, Chain Draw Benches, Hydraulic Machinery, Pumps, Accumulators, Power Presses, Rolling Mills, Shears, Slitters, Finishing Machinery for Sheet Brass, German Silver, etc.

# I Have Told You

about my TRIPOLI COMPOSITION, and just how good it is, and how it really produces more results and better results with less quantity used, than any other on the market.

I am prepared to prove it.

I HAVE TOLD YOU about "STEVENS' POLISHERS' FRIEND," and how its use prolongs the life of your leather wheels. About STEVENS' SILVER FINISH for buffing nickel and giving it the color of silver.

BUT, I have not told you about two expensive, and too expensive, necessities of the polishing room—GLUE and EMERY.

Unless the right kinds are used, either or both are too expensive.

When setting up a polishing wheel, an inferior glue will not hold the emery so that it resists the heat and pressure of grinding and polishing, but it soon comes off.

I do not manufacture the glue I sell, but after several years of trying various kinds, I have had one glue factory make a glue for just this purpose, and it is an emery glue and stays where it is put, and each shipment is uniform with the other.

The emery that goes with it is a genuine TURKISH product, and each grain presents the greatest possible cutting surface. A wheel set up with my glue and emery is a success every time. Try it. The risk is on me.

I can fill your orders for GLUE, for TURKISH EMERY, for STEEL POLISH used for steel buffing, and for EVERYTHING a plater, polisher or a foundryman uses. I say Foundryman, also, for I manufacture FOUNDRY FACINGS and SUPPLIES, BUFFING COMPOSITIONS and PLATERS' SUPPLIES. If you start business with me we will move right along together—NEXT!

**FREDERIC B. STEVENS,** Cor. Larned & Third Sts. DETROIT, MICH.

EXPORT WAREHOUSE, WINDSOR, ONTARIO